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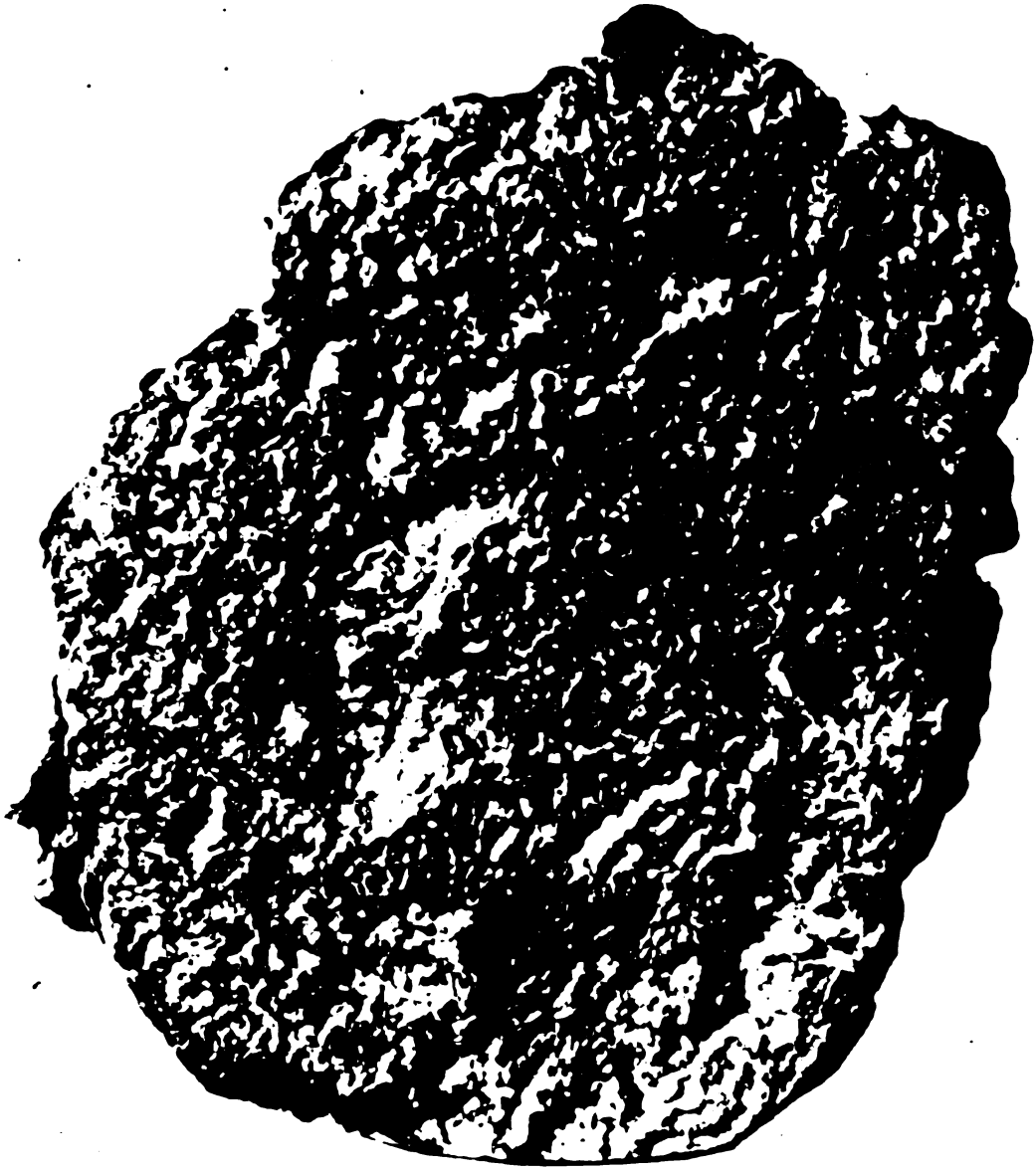
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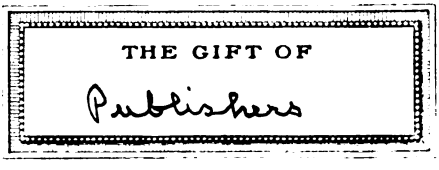
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The Erie Street Medical College Sixty Years Ago

By DAVID HERRICK BECKWITH, M. D., Cleveland

I had the pleasure of being a dinner guest at the home of your President on December sixth. At the table were six children—healthy, robust, red-cheeked and with good manners, ready for the late products of the Painesville farm. This sight told me that he had not lived in vain.

Later I was invited into his beautiful library, a cozy room containing a large selection of books. Ensconced in an easy chair, an elegant Havana cigar was offered me. Having resolved, when a student of medicine, never to use tobacco, this courtesy was declined.

The conversation soon turned to medical topics and particularly to the medical library in which we both are so deeply interested. With a wise look, he said, "I invited you here not only to dine with me but also to discuss the best methods of conducting the library, and how we might reduce expenses." He well knew that I am opposed to expenditures which involve any indebtedness being left at the close of the year. I suggested that we might increase the dues for membership, increase the number of members, admit to membership business men outside of the profession, take fewer journals, but above all conduct the business of the association in the most economical manner. A wise look and a gentle puff of smoke ascended heavenward. "Do you think it wise," he said, "to pay sixty dollars, as we did last year, for a man to give us an annual address?" I told him that we had more than a score of men in the city competent to fill the place. He said, "I have a man in mind and THOU ART THE MAN!"

I was astonished at his declaration and declined saying that there were many other men better qualified to make the address. I called his attention to my age and my not being a good speaker. He gazed at his library with its full quota of works on ancient

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literature. "Doctor," he said, "you have, no doubt, read that in the reign of Imperial Vespasian there were many men of thought and action who held body and mind together many, many years. Cato Censorius at the age of 79 years transacted a large business. Plato, at the age of 82, devoted his last hours to intellectual work. Chrysippus in his seventieth year wrote his work on Logic. Sophocles in his eightieth year produced one of the greatest tragedies ever written. Quintius Fabius when past middle age was appointed to a high office which he held for more than 40 years. Cicero did good work in extreme old age. Hiero, king of Sicily, lived to be 90 years of age. Massinissa was a ruler for 60 years. Xenophanes, the Pythagorian, reached his ninetieth year and said his last years were his best. Goethe, Pindar, Colon, Newton, Socrates, all did good work in their old age. Harvey, when he discovered the circulation of the blood, had passed his eightieth mile-stone. Michael Angelo did his superb mural paintings at Rome at an advanced age. Isaac Walton had a ready pen at 90. Hahnemann at the age of 91 was still in practise and actively at work on his materia medica. Call to your mind the age of many of the popes." Turning to his medical library, he said, "I can cite to you the names of many physicians who did good work at an advanced age. Why, sir, look at our own country. Our dear Dr Howard's uncle did major operations in surgery at the age of 84 and continued his office work until the age of 86." I called a halt. His auto-suggestion had entered my brain. I yielded. I assure you that I was astonished at his knowledge of history and his recollections of the ancients. If I could have our Mayor with his magnetic power as the clergyman and our Doctor Sherman as the physician, I could heal thousands with this combination of "Religion and Medicine" and build the finest church in the city. Medicine and theology would lead the van.

You may be interested in some recollections of the first medical college in northern Ohio, and of the men connected with that institution. I shall present a brief sketch of them as I knew them 60 years ago.

A farmer's boy, in a lumber wagon, I came to this city from Huron County to attend lectures at the medical college at the corner of St. Clair and Erie streets as a member of the class of 1848 and 1849. For more than half a century the building was a landmark for Clevelanders. The term began the first Wednesday of November and continued 16 weeks. There were six

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lectures daily, Wednesday afternoon being set apart for medical clinics and Saturday afternoon for surgery. We had a large amphitheatre, a museum of morbid anatomy and a general museum, the first in the state. The college library contained a thousand volumes. The museum included fine specimens of birds of many varieties of hues and colors. There were also many animals and a great variety of fishes, most of them prepared by Dr Kirtland. This museum was visited by many people from out of the city.

The books mostly used by the students were Wilson's Anatomy, Carpenter's Physiology, Druit's Surgery, Watson and Dunglison's Practise, Churchill's Obstetrics and Diseases of Children, and Gray's Chemistry.

The matriculation fee was $3.00, the tuition fee was $50.00 per term, while good board could be obtained for $1.50 or $2.00 per week. Students could make special arrangements to board themselves at a lower cost.

The faculty of instructors consisted of seven men. The names of these men and their chairs were as follows:

Jared P. Kirtland, M. D., Professor of Physical Diagnosis and the Principles and Practice of Medicine.

John Delamater, M. D., Professor of General Pathology, Microscopy and the Diseases of Women and Children.

Horace A. Ackley, M. D., Professor of Surgery.

John Lang Cassels, M. D., Professor of Materia Medica, Pharmacy and Botany.

Samuel St. John, M. D., Professor of Chemistry and Medical Jurisprudence.

Jacob I. Delamater, M. D., Professor of Anatomy and Physiology.

Leander Firestone, M. D., Demonstrator of Anatomy.

The President of the college was Rev. George E. Pierce of Hudson, Ohio. The class of students numbered 248. Of these, Ohio furnished 150, Michigan 32, Pennsylvania 33, New York 19, Iowa 11, Wisconsin 2, Tennessee 2, and Texas, Alabama, Illinois and North Carolina each 1. Eleven states were represented. Two of these students had their homes in Cleveland. One was Proctor Thayer, who served as an assistant to Prof. Ackley and afterwards became a surgeon of both local and national repute. The other Cleveland student, Henry K. Cushing, became a physician of high standing, a citizen respected and beloved by all his associates. He received great honors, the most

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notable one being the dedication to him of the present Laboratory for Experimental Research in Western Reserve University.

I now desire to call your attention to those pioneers and teachers of medicine in Northern Ohio with whom I was acquainted.

Prof. Kirtland was a great student, an energetic and forcible man. He had a certain magnetic power which compelled the love and respect of the students. He was a strong man, of a nervous, sanguine temperament, but his strength was of a peculiar kind; it was passive rather than aggressive. His was a strength that seemed to yield to every influence, swayed by associates perhaps, yet was consciously bound to carry his desired end. Therefore he was the master-spirit of the faculty. Not only was he well versed in medicine and its collaterals but his general knowledge earned for him honors and respect from scientists of his own and foreign nations.

His model farm on the Detroit Road was a haven for rest. Here were the choicest fruits in the State. Over the walks were bowers of roses. He was a propagator, an inventor and a discoverer. He brought forth new varieties of plums, peaches, apples, and grapes. In the year 1864 when I ventured an attempt to develop a large vineyard at Dover Bay, he pointed out the soil that would yield the choicest fruits and instructed me as to the best method of preparation. Later, he assisted me in classifying some new varieties of grapes.

He was also an ornithologist, having prepared with his own hands many of the specimens now in the museum at the college. As an ichthyologist, he was an authority on fish, particularly on the habits of those in the northern lakes.

To me in 1863 his home was, indeed, the picture of an ideal country seat, as one saw it after the first frost had come, it was as if a magician had transformed the summer green of the park into a mass of even more gorgeous colorings, while the autumn leaves, crimsoned and yellow, drifted down perhaps a little sorrowfully and lay glittering on the soft turf under the clear sky. And, to make the picture complete, the blue waters of Lake Erie rippled against the shores of the great, green pastures. The immense number of forest trees surrounding his home, exotics, evergreens and deciduous plants, attested his fondness for arboriculture. Pines, chestnuts and cedars, the flowering dogwood, spruces and catalpas were interspersed with the native

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woods of oak, beach and maple. Truly this was a fitting place for one who loved nature as did Prof. Kirtland.

His low, one story house covered with ivy, surrounded on all sides by trees, shrubs and flowers, suggested the hospitality which all received within its doors. Most fortunate was I to enjoy his friendship and to listen through the winter of 1848 to his course on physical diagnosis, the first course on that subject given by him.

All the students did reverence to Prof. Delamater. He was a most practical teacher, well versed in his subject. He always lectured sitting in his chair as he was not very robust, though he was capable of much endurance. His venerable appearance as he rode about in his two wheeled chaise, made me feel that he must be a good and loyal family physician. No man could have been more devoted to his profession; to the poor he was always kind and generous; and from 1848 to the day of his death he did a very large professional business. He cared not for money except as it brought to him the necessaries of life. I think he was a man quite easily prejudiced against any one whose opinions did not agree with his own and he was ever ready to open an attack. He was a great favorite of his patrons and today their children and grandchildren speak lovingly of the old doctor. To be remembered for three generations is indeed a great tribute. It has been a wonder to me for many years that some one, in or out of the profession, did not erect a monument to his memory.

"We'll hide his loving memory in our hearts;
We'll follow in the pathway which he trod;
We'll make each day another step upon
The stairway leading up to *him* and God."

Prof. Cassels was of a phlegmatic temperament, slow and deliberate in delivering his lectures, his pronunciation distinct and precise. He regarded materia medica as the branch of study a knowledge of which, if perfect, would make the most successful physician. I was deeply interested in his subjects and after college closed, entered a drug store where I had an opportunity to continue with advantage the instruction received from him. Since that time, I have considered a knowledge of the action of drugs and the provings on those in health as the great keystone to our profession. I can even now recall to mind the staid and genial teacher before his class with the correct paintings in colors of the plants which were to be our lesson during the hour of lecture. I was particularly interested as he presented the colored

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plate of Cimicifuga racemosa giving its general character, the color of its blossoms, the height of the plant from four to eight feet, the calyx, the petals, the fruit and seeds, its medical properties and uses, the amount of its dose and the diseases in which it might be used with benefit. The action of this drug on healthy persons had not then been investigated but since that time pharmacists have given it a thorough proving in both health and disease.

I will tell you why I was so interested in this one plant more than others better known and of more value to the medical profession.

Over seventy years ago, my father, while cradling wheat on his farm, was bitten above the top of the bootleg. For a few minutes he felt a stinging pain in the leg. Retracing his steps, he soon found a large rattlesnake, coiled, his eyes sparkling and his rattles sounding the alarm to tell my father he was ready for the battle. The snake was soon dispatched, the leg ligated above the wound and suction applied to remove the virus.

Hastening home, my father sent for Moses C. Sanders, the leading physician and surgeon in the county. Meantime the leg became exceedingly painful and enormously swollen. The doctor was soon at his bedside but all his skill and treatment were of no avail. He finally told my father that there was no help for him and bade him farewell.

With a wife and small children about him and dependent upon him, my father did not propose to leave this world if he could help it. He sent a messenger on his swiftest horse to bring an Indian doctor who lived two miles distant. The Indian soon arrived riding behind the messenger, and went to work.

A decoction of the cimicifuga was administered internally. Poultices of the whole plant were made and applied freely to the limb and to other parts of the body. The effect was marvelous. My father recovered and lived many years after that eventful day.

In one of his lectures Prof. Cassels said: "A knowledge of flowers and plants exerts a great influence over men's moral characters. The contemplation of the varied beauty begets in us a love of peace and harmony and while holding communion with them in our morning walks and noonday rambles, our feelings become softened beyond the avaricious scramble for power and dominion. Flowers and shrubs tastefully arranged around a dwelling are strong evidences that cheerfulness, comfort and refinement have an abiding place within. The cultivation of flowers also tends to strengthen our piety."

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Prof. Cassels' home was, inside and out, a garden of flowers and a bower of roses. His wealth allowed him to gratify his taste. The most of us, I regret to say, cannot afford the pleasures of such surroundings.

With all his good qualities, he was firm in his opinions and carried on his discussions resolutely. I had occasion to have this meted out to me one evening at our debating club which met once a week to discuss some medical topic. The speaker, who was to lead in the affirmative, was J. Potter Peck, of Akron, a fine debater and quite an orator. A young fellow by the name of Beckwith was chosen to present the negative. He was not an orator nor a good debator but possessed one of the qualifications of Mr. William J. Bryan in that he never surrendered, and when he was not familiar with his subject, he made the best of it. I spent all my leisure time investigating the topic, lying awake nights thinking of arguments to present, dreading to fail entirely and receive the jeers of the class. Prof. Cassels assumed the chair and announced the subject to be debated, "Resolved that homeopathy is the greatest humbug of the age." You all know how the chair decided, but he complimented my efforts.

My first lesson in the principles and practice of homeopathy, I received in the old Erie Street Medical College through study and contact with Drs Wheeler and Williams who aided me in the battle.

Lesson two I received from Prof. Kirtland in his introductory lecture, "Coinciding Tendencies of Medicine," published by the close November 10, 1848.

Lesson three came from Prof. Delamater when he gave three lectures on "The Fallacies of the Principles and Practice of Homeopathy." As I listened to his remarks, which I believe he thought to be true, I could not but wonder why he should devote to the subject three hours of his own valuable time and the time of 240 students.

At a time when blood-letting was practised on most patients, when large doses of health-destroying drugs were prescribed, these immense doses being forced down the throats of infants, I longed for something more humane. Today, purging, puking, blistering and salivating are done away. Personal antagonism has, among the better class of physicians, disappeared. We meet together as a band of brothers striving each to relieve the suffering and pains of those who call us. As a result of our combined efforts during the past fifty years, great strides have been made in hygiene, sanitation and prophylaxis.

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Prof. Richard C. Cabot, of the Medical Department of Harvard University, says: "Our views of the founder of homeopathy are far less divergent than they were fifty years ago. We recognize now that in his day and generation he stood for a great and beneficent reform in medicine."

I am glad that I have lived to see such a change in the medical profession so that we now meet as medical brothers, each striving to the best of his knowledge to relieve and benefit suffering humanity. My observations during the past few years have shown me that most of our best physicians give but little medicine, though some of both schools still rely on large doses and combined drugs, which is wholly unscientific.

Prof. Ackley was a man of tall, robust frame, of a bilious sanguine temperament, coarse in features—all of which indicate a man of strong passions and decided opinions. As a surgeon, he was at the head of his profession in Northern Ohio. He was a bold and successful operator. All good surgeons are admired by medical students, each one of whom hopes that some day he, too, may wield the scalpel successfully. The class of 1848-9 presented to the college a life size portrait of Prof. Ackley, which is now in one of the buildings of the university. He was original in thought and deed and kindly, though to his associates he appeared cold and austere. He was a friend to the poor for he gave to them his services without money and without price. I believe that no one in the faculty had a kinder heart or a more liberal purse for the unfortunate. Had his home life been more congenial, he would have taken a higher place in the world.

Many stories are told of his eccentricities. A number of students were one evening invited to dine at his home. When we reached the house, we were informed that he would meet us at the American House, located at the foot of Superior Street. Wine flowed freely and it was an early hour in the morning when the feast ended. The professor did not appear in the lecture room for three days. The dinner at home was prevented by the tipping over of the tables after they had been prepared to receive his guests.

So eccentric in many ways was his life companion that by the advice of Prof. Delamater she was taken to a sanitarium. Returning, the doctor stopped for a three days hunt at Wellington. On reaching home he was greeted by her in a most forcible manner. The sanitarium scheme was not a success.

His ability and reputation as a surgeon were a drawing card for students. At a clinic, he had spent about thirty minutes

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explaining the variety and character of tumors. "We have one before us today," he once said, "whose fluctuation shows us it contains a large quantity of pus." The scalpel entered the tumor. No pus flowed. He bowed to the class and said, "We all make mistakes."

Prof. St. John was a tall, stately, fine appearing man. All his movements were easy, graceful and natural. He had the appearance and actions of a man accustomed to the ways of the world. While he was wholly unpretentious he yet seemed the peer of his associates and his conversation attracted students to him. He was of a nervous temperament and his great, high forehead betokened the intellectual development which was his. Notwithstanding these attributes, he was inclined to be rather reserved, not associating with the students and disliking very much to have them put questions to him.

He was always prompt at his lectures, arriving exactly on time and withdrawing the moment the hour came to a close.

As a chemist, he was a thorough and practical teacher. I have, during my life, listened to many teachers but none of them excelled Prof. St. John. His language was fluent, his enunciation clear and his voice melodious.

He had a remarkable memory. Not long after my year in the college, he left Cleveland, having received an appointment as chemist to one of the great institutions in New York. I was in New York in 1864 and while there met him as a fellow guest at dinner. Looking me over, he said, "Were you not at one time a medical student in the college in Cleveland?" It proved to be a very pleasant meeting of teacher and pupil.

Prof. Jacob I. Delamater gave us a very thorough and practical course in anatomy. He was, however, hardly the man for the place and never took a high position as an instructor. In 1848, he published a pamphlet on "The Medical Waters of Saratoga; Their Uses and Abuses." This was a very creditable work.

I have presented to you this evening the story in part of what I saw in the old college in 1848 and 1849. The memory of those pioneers has always been very precious to me. I have always revered and honored my first medical college teachers and even now when I enter the college building on the same old site, I feel that I have returned to a dearly loved place.

A few words more. The work in which you are engaged is a great work, both for the medical profession and for the people of Cleveland. Do not falter but make each succeeding year the

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best for the library. Let your motto be, "ONWARD, FAITHFUL DOCTORS, ON!"

Tonight I extend to each member of this association my heartfelt thanks for the great kindnesses and many courtesies show me during the five years I have been one of your members, serving as Chairman of the Finance Committee for two years and your Vice-President for three years. My maxim throughout life has been, "Accepting office, I will be faithful and punctual in my duties and work for others as I would work for myself." If I have failed here, it has been from the head and not from the heart.

In eight weeks, I shall enter upon my eighty-fifth year. Though not old, according to our President's views, I desire you to put in my place this evening some young man who has the interests of this great work in his heart and brain and who will put into it new blood.

My association with the different members of the Council during the past five years has been a pleasure to me. Each one has been loyal in his work and all true as men and physicians to each other.

I wish for you all a very merry Christmas and during this coming year of 1909 may you all have health, happiness and prosperity.

As your Vice-President, I bid you all farewell.

The Ethics of Specialism

By R. E. SKEEL, M. D., Cleveland

In 1903 the American Medical Association adopted a revision of the old Code of Ethics, which had been for years a guide to the conduct of physicians toward each other and that portion of the public with whom they came into professional contact. This revision was named "The Principles of Ethics," and was understood to embody that which its name signified, leaving the actual application and enforcement of its ideas to subordinate bodies, wisely recognizing that local conditions in parts of the country widely separated would be different, and that such local conditions might materially modify, or openly contravene too many iron-clad rules. It is specifically stated, however, that local societies may not infringe upon the established principles of the American Medical Association.

Read before the Academy of Medicine of Cleveland, November, 1908

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It is safe to assume that any code of ethics, or written principles of ethics, is nothing more than the crystallized sentiment of the body adopting it, and must be an expression of nearly unanimous opinion. As it requires considerable time for such unanimity of sentiment to develop, it necessarily follows that many matters of importance are left out of a written code because not sufficiently settled to permit of their universal adoption, and that a code is thus some years behind the actual practice of its sponsors. In this way only can we explain the paucity of reference to the ethics which should govern the attitude of the specialist in various branches to the one referring cases to him, and *vice versa.*

Present day specialism has been of such rapid development, and is extending so widely, that in large cities nearly all physicians are to a greater or less extent specialists, even the family physician becoming the hygienic specialist and the manager of the acute internal diseases. Should the old definition of a specialist prevail, viz., that he is one who knows as much about all parts of his subject as any, and more about one part of it than any other, it would be a consummation to be desired. Whether this is true of all modern specialists is aside from the object of this paper. While this code adopted less than six years ago goes into details concerning the proper conduct of a consultant, there is but one section which has anything to say about the ethical handling of a referred case in which it is presumed that the consultant will assume the active management of the patient; and the instances in which this is done are greatly in excess of those in which only an ordinary consultation is desired.

It is with the open purpose of clearing the atmosphere that the present paper is written, not with the hope that anything which it may contain will assist, but that in the discussion which follows some unanimity of sentiment may be expressed which will guide all of us to a more uniform plan of procedure in dealing with our colleagues in the profession.

In a small community it is probable that no man could exist as a specialist in the strictest sense of the term, *i. e.,* that he restrict his practice to his special department absolutely, but in larger communities this is quite possible, and the first question that arises is whether one is justified in posing as a specialist while at the same time carrying on a general practice. This question is a wide one and needs to be looked upon in the broadest possible sense. There are some well defined specialties, obstetrics

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for example, in which existence would be impossible if so restricted. That man who undertook to be a pure specialist in this department in this city would soon find himself a candidate for the poorhouse, or the State Hospital. I am satisfied, however, that there is no department of medicine or surgery in which the pure specialist is so much needed as in this one, but so long as it is so inadequately paid this is entirely impossible, and it must continue as an adjunct to the family physician's work in the vast majority of instances. This is a branch of his work which he would often gladly avoid did he not know that it was the entering wedge to all the pediatrics, gynecology and other general work of the family. Conversely, so long as the fees are so small, it must be so used and will not exist independently, and the obstetric consultant will continue to be merely the man who has had greater experience or more training than the family physician, and one who is himself engaged for the greater part of his time in other lines of work.

There are other special fields similarly situated. The genito-urinary surgeon is often only the general surgeon who is giving more time and attention to genito-urinary surgery than any other portion of his subject, and the gynecologist of today frequently belongs to the same class. Certainly there are specialists of the very best type now developing, who during their period of development must gain financial support from general practice. Indeed, it is doubtful whether, with the present facilities for the study of medicine in this country, the best preliminary training for a specialist is not general practice, if he is to avoid the pit into which so many fall of ignoring all other portions of the body than the one in which he is interested, treating all other organs as subordinate to the eye, ear, heart, stomach or uterus, as the case may be.

I believe that the great success of many European specialists is due to their wide general knowledge gained by years of training in large hospitals and clinics, and in constant contact with pathologists, internists, surgeons, and every variety of specialist.

The question here opened for discussion is, will the survival of the fittest determine who is the specialist, and the amount of his special work determine the time when he should cease all else, or is it possible that greed might lead one to refuse to let his right hand know what his left was doing, playing specialist with one while flirting with all sorts of general cases with the other,

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so that an unequivocal declaration of his intention should precede every man's entrance into a special field?

Another rather knotty problem refers to the date when a referred case should be returned to the family attendant and the specialist's attention cease. Common sense would seem to dictate that when the condition, for which the patient had been handed over, had been cured the time for his return to his regular attendant had arrived. In such simple straightforward conditions as a cataract extraction, a hernia operation, an appendectomy, an operation for ectopic pregnancy or intestinal obstruction, the discharge of a patient from the hospital should be practically coincident with his cure and the cessation of any special attention, but such is not the case if a patient has had a vaginal section for pelvic abscess with its possibilities in the event of old adhesions and ovarian and tubal distortion. Neither is it true of a mastoid operation, of a nephrotomy for stone, of a gastro-enterostomy for pyloric obstruction, and more particularly is it not true of that large class of gynecologic cases in which repair work is only the first step in the cure of a patient who is both a surgical and neurological case. I am convinced that in the latter class of patients many are dealt with in a manner which is unjust to them when they are discharged so soon as their surgical lesions are well. On the other hand the family attendant might well say that he had referred such a case for the surgical attention necessary and that he was fully capable of carrying out any further medical measures needed to complete a cure, but frequently the one referring such a patient has seen her but once or twice, and just as frequently the treatment needed is not medical but hygienic and psychical, along lines which the busy general practitioner has neither the time nor inclination to follow.

How to deal with such a condition with fairness to both patient and doctor is a problem which I should like to hear thoroughly discussed, for I know of no way in which it can be done unless there exists the most intimate acquaintanceship and implicit confidence between the medical men involved.

Another point about which considerable friction arises concerns the specialist's private practice along his own special lines. At the one extreme are those who would restrict him to consultation and referred cases. Such an attempt has been made but once so far as I know in this city and it resulted in a dismal failure. At the other extreme are those who fuss with the most trivial cases in their own line besides managing all sorts of

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border-line cases which might with propriety be handled just as well by their own physician, when they expect these same physicians to hand over their heavier cases and those which they appreciate are beyond their knowledge and skill along special lines. I believe the latter attitude to be most unfair, but where is the dividing line, and how shall it be determined? Unless it be along the same line of survival of the fittest and the elimination of the unfair by natural methods of self-preservation I am unable to answer, but should like to hear it discussed.

In Article VI., Section IV. of the Principles of Ethics of the American Medical Association I read the following: "It is derogatory to professional character for physicians to pay or offer to pay commissions to any person who may recommend to them patients requiring general or special treatment, or surgical operations. It is equally derogatory to professional character for physicians to solicit or receive such commissions." How frequently is this principle violated? If it is violated, it is because the profession has progressed so far that its written code is already obsolete, or is the profession evolving into a frankly commercial body? If it is so evolving is it all for the best, or is this particular change which looks like evolution, involution and degeneration instead?

These are but a few of many questions which are brought up by its consideration. The frequency with which it is violated simply cannot be determined, and proof in the legal sense that its violation exists at all, probably could not be obtained. That it does exist, and also that it is fairly widespread, is nevertheless absolutely certain. My first contact with this side of the financial aspect of modern medical practices came while I was a very young and inexperienced practitioner, when I was approached by a specialist who remarked that he would, confidentially of course, give me 25% of any fees which he collected from patients whom I might refer to him. I had no cases in his line and so received no commissions. I have no doubt that I should have accepted this offer had the opportunity arisen, because I saw no harm in it and scarcely understood the need for secrecy. I had never been taught differently and should have blundered in this as I did in many other ethical matters during my first years of practice, when ambition to get ahead was uppermost and no decent perception of the other man's rights had been hammered into my head. All this aside, however, I then became aware of the fact that fee splitting and commission giving did exist.

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Later, the other side appealed to me after this fashion. An elderly, very respectable out-of-town physician requested me to name a fee for a given operation, saying that his patient was in very moderate circumstances, and I consequently gave him a figure approximating one-half the usual fee for such a case. Arriving in the city a day ahead of his patient was the gentleman's letter saying that he had told his patient the total fee would be double the amount I had stated, that from this I should collect my own fee and the hospital bill which would be small, and that if my conscience hurt me, a check for the balance to him would be acceptable. I entered into a little correspondence in an effort to ascertain what his previous "business" arrangements had been but my friend was wary and did not reply. When the settlement came, I did as directed but instead of sending a check to the doctor, gave the balance back to the patient's husband and requested him to turn it over directly. Curiously enough I never received another case from this source. As I knew who had previously done this man's work, I was quite convinced that fee-splitting did exist, and that it came out of the patient, not the surgeon. Again, in going out of town to operate, I told the patient before her physician what the fee would be. After the operation the doctor counted out the money, letting go the last few bills very reluctantly. He then requested me to see, without charge, a patient for him, which I did willingly, advising operation. The advice was followed, but as a surgeon was summoned from a distance it became perfectly apparent to me that a fee was collected, and again I was convinced that fee-splitting was expected if it did not exist.

I might go on and detail stories of men who say that they have given up all forms of special work because they can take their cases to this, that or the other man, have no responsibility, and get more out of it than they themselves could collect for the same service. I could take up instances when one consultant gets all the desperate emergency work from a physician, and another all the deliberately planned special work for well-to-do patients, and might hazard a guess that one consultant split fees and the other did not.

These details are not necessary to prove to the profession that the custom is fairly common, but the unfortunate thing is that the general public is also aware of it. In a recent number of the *Literary Digest* there appear some extracts from a paper by Dr J. C. Munro, of Boston, upon this subject and comments

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thereon. The question which we should discuss in all its bearings is the right or wrong of the matter. Is the section of the Principles of Ethics, which I have read, antiquated and behind the times, or is it right, and the men violating this section fit subjects for discipline, and in addition morally blind to the best interests of their patients? Like many apparently simple matters, this becomes more complex the longer it is studied. Any specialist's business comes from various sources. First and foremost, I presume from his personal friends in the profession who believe, first, that he is competent and will do good work for their patients, and second, that he is honest and will return their patients when his work is done. If he really is competent, no doubt one patient will send another as they do in general practice. If he is very prominent his reputation alone will attract both physicians and patients.

I take this up merely to show that in the first instance the specialist is largely indebted to his personal professional friends for his start, that afterwards he is indebted to his patients, and that finally he is indebted to both patients and physicians of whom he may know little or nothing. That he owes all of them something is apparent. That there is a seeming injustice in the family physician making one visit and collecting for that one only and then turning the case over to the eye man, the ear man, or the surgeon who will collect the large fee, is also painfully apparent. Is this seeming injustice to be rectified, however, by the specialist charging too large a fee and rebating to the first attendant? If the case is an operative one the family will expect the physician to be present, and in many instances the patient would be much better cared for by his occasional if not constant attention. Is the work any better done for the patient, or is the intelligent patient any better satisfied if he or she thinks the specialist is charging an exorbitant fee and the family physician contributing his services, or will the patient estimate the physician's worth by his own apparent estimate of it, viz., nothing?

There are instances, I know, when but one fee can be charged but two must be paid. Such instances are largely found among unintelligent foreigners who will pay but one, but even then is it better merely as a matter of policy to let them think they are paying but one and the other is charity, than it is to tell them frankly that their physician must be paid and that his fee has been added to the specialist's? A similar condition may arise when the specialist operates away from home, or upon a case in

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a private house, and the family attendant has charge of the after care, but here it is self understood that both men are being paid, but for services rendered by both, which is quite different than the practice of asking the family attendant to assist or give the anesthetic or perform some other minor service and then tendering him one-third or one-half the fee. The latter does not differ in principle from plain commission paying.

The most serious evils that must of necessity spring from fee-splitting are the sale of patients to the highest bidder whether competent or incompetent, honest or dishonest; the drumming up and performing of unnecessary operations merely for the money there is in it, trafficking in one's own flesh and blood as Joseph Price puts it, and the constant and mutual deception which is going on, for doctors after all are but human beings. Among them are to be found all classes just as would be found in any other aggregation of professional men and no way has yet been devised which will keep the crooked man out, or put him out after he is in, if he is not only crooked but clever. Is there no way by which the referring physician can be recompensed except by the payment of cash? And if the cash must be paid, cannot some way be devised by which it shall come out of the man who should pay it instead of the innocent third party, the patient?

Does proper and efficient service, sending the patient back to his own physician, assisting him in every proper and decent way by giving a helping hand whenever needed to all his patients, rich, poor and poverty stricken alike, for a large, small or no fee at all, and bearing all the responsibility for disasters that are sure to come, and assisting in every legitimate way to see that the family attendant's services are adequately appreciated and paid for by those to whom they are rendered, does all this discharge the obligation which the consultant undoubtedly owes? If it does, then fee-splitting is derogatory to professional character and those who habitually give or take commissions should be forced to stop or leave the organized profession. If it does not, then those of us who have been old fashioned enough not to do it are guilty of the grossest injustice to our personal professional friends upon whom we are dependent for our livelihood.

Mr. President and Gentlemen of the Academy, I believe the time has arrived when we must decide whether medicine has passed from a profession to a trade, whether the professional idea of service first, compensation as a secondary consideration, or the commercial idea of money first, last and all the time, is to be accepted as our standard.

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Some Diseases of the Jaws with Illustrative Cases

By C. A. HAMANN, M. D., Cleveland

It is the purpose of these few remarks to describe some affections of the jaws, a few of which are not of frequent occurrence. The first one of these conditions of which I wish to speak is known as "leontiasis ossium cranii." Virchow, many years ago, called attention to a curious disease characterized by an overgrowth of the bones of the skull which gave to the features a leonine appearance, hence the name leontiasis.

The condition usually involves the entire skull. Up to the present time there are some 50 cases on record, most of which are museum specimens, only about one-half having been seen in the living patient. The disease, as stated, is characterized usually by an immense overgrowth of all the cranial bones, and this increase in size may, in time, lead to death from compression of the brain. Prior to death there is liable to be pain from pressure on the nerves at their point of exit from the skull. Most of the cases have shown general enlargement of the skull. I have seen two cases, however, in which the overgrowth was limited to one side of the head. I also have seen a case in which only the lower jaw was involved. This was a woman, 55 years of age, who at the time she presented herself had a very large lower jaw. She had been told that the condition was a sarcoma. The long duration of the condition, which she stated was 20 years, and the freedom from pain, with the diffuse overgrowth of the lower jaw, made me regard the condition as one of leontiasis and of course operation was not advised. The patient died a few years later.

The pathology of the disease is quite unknown. Histologically there is only a diffuse overgrowth of the bone. No indication of neoplasm is present, nor is there an inflammatory condition. The fact that it occurs in some cases only on one side, and also sometimes affects but one portion of the skull, as the lower jaw, is, I believe, a point not generally known.

Part of the hyperostoses of the jaws are inflammatory in origin, such as osteitis, osteomyelitis, and syphilis. Hypertrophy of the lower jaw may occur and this is of dental origin, due to irritation. I have in mind a patient on whom we operated this fall, who presented a symmetrical enlargement of the lower jaw. The process had been going on for some months and apparently

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started from diseased teeth. However, at the time of the operation the teeth were normal, nor was there any pus present. The lower jaw was enlarged from angle to angle. No acromegaly existed, nor was the condition one of leontiasis, unless it was the form which affects this bone alone. I took it that she was suffering from a hypertrophic condition due to dental irritation. At the operation it was found that the overgrowth was one of cancellous bone, not accompanied by suppuration. Cases of this sort are rare. It was not a case of syphilis, for the woman had been given antisyphilitic treatment by another physician for this condition and she did not improve.

There is another group of cases of enlargement of the jaws due to changes in the ductless glands. I refer to those changes associated with acromegaly and cretinism. In acromegaly the enlargement of the lower jaw is diffuse, and other bones of the body are involved in the enlargement. In cretinism there may occur an overgrowth of the jaw. Such cases are rare in this country.

There is a further group of cases which lie on the border line between hyperostoses and leontiasis. One would hardly call a diffuse overgrowth of the jaw an osteoma. An osteoma must be circumscribed. Yet there are hyperostoses which would be hard to distinguish from osteomata.

Another form of overgrowth affecting the lower jaw is unilateral hypertrophy. This differs from leontiasis in that there is an overgrowth of the soft as well as the bony structures. This condition is rare. I believe this may be described as a trophic change.

Another condition of overgrowth is macrognathia. This is an enlargement of the lower jaw, seen most commonly in idiots and imbeciles. In addition to the increase in size there is a change in the angle which becomes more obtuse so that there is malocclusion of the teeth. It may be looked upon as one of the stigmata of degeneracy. Enlargement of the jaws is sometimes seen in syphilis. Fournier has described an enlargement of the lower jaw which is quite characteristic. It consists in an enlargement of the angle of the lower jaw on both sides and is seen in congenital syphilis.

I would here call attention to an anatomic fact which has served me well in differentiating enlargement of the jaws from other conditions. One or two of the submaxillary lymph glands may lie on the periosteum, and a tumor of these glands very

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closely simulates sarcoma of the jaw. I have demonstrated this frequently in the course of operations. The condition may look like an enlargement of the jaw itself.

There are curious exostoses of the jaw which may next be considered. The two specimens I have here are the only ones I have ever seen. The exostoses are symmetrical and situated on each side of the median line just back of the second incisor teeth. In seeking for the origin, the symmetrical condition would indicate a cause affecting both sides. I have never seen such exostoses in the living. In the other specimen I have there are also symmetrical growths on the lingual border throughout its entire length.

There is an enlargement in the median line of the hard palate which is spoken of as torus palatinus. This consists in an enlargement or thickening of the two superior maxillary and palate bones at their line of junction. There is an elevation of greater or less height running the entire length of the hard palate. It produces no disturbance and is not of the nature of a neoplasm. It has been regarded as one of the stigmata of degeneracy. There is no foundation for this assumption. The condition does not require treatment.

The most common tumors are the epulides. These may be benign or malignant. The benign forms do not return on removal. The malignant forms are usually sarcomatous. The diagnosis is made by the clinical course, and further by the fact that the malignant epulides may return on removal. I would call attention to the fact that in malignant epulides, it is extremely important to remove a large area, not to simply shave it off. It is best to remove the alveolar process.

Cysts are more common in the jaws than in any other bones. When situated in the jaw they have an epithelial lining. This is due to the fact that they have their origin in remnants of the enamel organ. For some reason or other these remains sometimes proliferate, and cysts are formed. The epithelial lining is absolutely characteristic of cysts of the jaws. A further feature of these cysts is that they may contain one or more teeth. The use of the Roentgen rays in making examinations of such conditions is therefore very apparent. There are two kinds of these cysts: the ordinary root cysts and the follicular cysts. The latter result from the non-eruption of a tooth, and are simply dental follicles increased in size by fluid. Some of these cysts have been described containing a great many teeth. I found a record of

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one said to contain 4700 minute teeth. These cysts are described by some writers as "compound follicular odontomata." All of these cysts, when they reach a considerable size, produce absorption of the bone, and the bony shell crackles when it is compressed. Another feature is that they are apt to be associated with the absence of certain teeth. These points are of use in diagnosis. The diagnosis may be confirmed by the X-ray which may show one or more of the teeth in the interior of the cyst.

The ordinary root cysts are more common in young persons up to the age of 20. It is to be remembered that cysts up to this age may be due to the non-eruption of a wisdom tooth. Curiously enough these cysts contain nearly constantly plates of cholesterin. It is interesting to note that cysts of the upper jaw may encroach upon the antrum, and may take its place. Probably most of the cases described as "hydrops antri" by older writers were such cysts. Of course they may become infected and suppurate. This condition would closely resemble an empyema of the antrum. Of these follicular cysts I have operated upon three. One occurred in a man 25 years old, another in a patient 45 years of age and the third in a child eight years old. In all cases they were slowly growing tumors, painless, and caused disturbance merely from their size. Each was about the size of a walnut. These cysts are treated simply by cutting away the overlying mucous membrane and a portion of the thin bony wall, scraping out the contents, and keeping the cavity packed subsequently.

Among the tumors involving the jaw, which are quite rare, are the odontomata. Most writers agree that this name should be given to tumors only when they contain one or more of the three hard structures entering into the structure of a tooth. There are only about 23 cases on record. I have had no experience at all with them.

Another affection of the lower jaw, that might be mentioned, is subluxation of that bone. The condition is described by Annandale. It consists in a slipping forward of the condyles when the mouth is opened. It is seen principally in women. It at times produces considerable annoyance, so much that I have been tempted to operate in two cases. The method consists in exposing the articulation and fixing by sutures the interarticular fibrocartilage. The results were satisfactory, though a temporary partial paralysis of the facial nerve was an unpleasant feature of the convalescence.

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Peritonitis

By CHARLES GRAEFE, M. D., Sandusky, Ohio

Peritonitis has been usually classified by different authors as idiopathic, local, general or diffuse, suppurative or septic, but practically it seems to be local or general, and either of the suppurative or septic type, and becomes dangerous to life by the absorption of toxins through the lymphatics with which the peritoneum is so richly supplied. While authorities still mention idiopathic peritonitis, yet the term itself is a confession of ignorance as to the causes which lead to this condition. This uncertainty has been dispelled by the results of modern investigation and we can define the cause, in the majority of cases, as a bacterial infection usually due to the streptococcus, the staphylococcus, the colon bacillus, the gonococcus, the pneumococcus or a mixed infection. The infection is usually introduced by perforations of the abdominal or pelvic organs. The most common sources are the appendix vermiformis and Fallopian tubes. These structures, from their situation and surroundings, especially if the inflammation precedes the perforation, are likely to become agglutinated with the neighboring organs, thus limiting the infection and making it local. When a perforation is not preceded by the throwing out of inflammatory lymph, or when it is large and occurs in organs containing much fluid, the inflammation becomes diffuse and general. This occurs especially in perforations of the stomach, intestines, the urinary- and gall-bladder, and in broken down growths or abscesses when large quantities of septic matter are poured out at one time.

The large peritoneal surface exposed permits rapid absorption which soon loads the system with toxic material and we have therein an explanation of the intense septic systemic conditions which soon follow the local lesion. When the blood pours into the omentum and abdominal organs to overcome the infection, the general circulation is robbed to such an extent as to produce the marked disturbances of the circulatory system which follow. These conditions can be easily explained since Wright has shown the effect of the so-called opsonins of the blood-serum in preparing bacteria for destruction by the leukocytes, as first described by Metchnikoff. Having demonstrated in the test-tube that the opsonins of the serum are the elements that prepare bacteria for destruction, he defines "spontaneous" phagocytosis as the process of ingestion which comes under observation when bacteria, which have not been subjected to the action of blood serum, are brought in contact with washed leukocytes in an indifferent medium such

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as physiologic salt solution. "Induced" phagocytosis he explains as that which is seen when leukocytes are brought in contact with bacteria which have been, or actually are at the moment, subjected to the action of serum. The former is an irregular process and can be completely suppressed by employing in a phagocytic mixture a concentration of slightly over one percent of sodium chlorid, while the latter is a rapid process, each adult leukocyte being phagocytic, and when the supply of micro-organisms is unrestricted the leukocytes will ordinarily fill themselves to absolute repletion and continue to ingest bacteria in a concentration of salt which entirely suppresses spontaneous phagocytosis. The peritoneal cavity when infected offers an ideal incubator for the multiplication of bacteria, for we have the requisite temperature conditions and media for their cultivation and we may consider that in the living being we have the same conditions for the occurrence of phagocytosis as is shown in the test-tube. The serum is effused into the cavity by the congested omentum and highly vascular organs to furnish the opsonins and plastic lymph for the destruction of bacteria and the localization of the process by adhesions and blocking of the lymph channels.

Clinically it has long been known that a peritoneum which has been subjected to irritation and local congestion and effusion is more tolerant and resists infection better than one not subjected to these conditions. It has also been demonstrated that, while the healthy peritoneum can endure without injury and dispose of a certain quantity of pathogenic germs, when the surface cells of the peritoneum have been subjected to mechanical or chemical injuries the same amount of bacterial fluid will set up a suppurative peritonitis and permit the bacteria to multiply locally. In the management of cases we learn from clinical experience that the localization of the process and the prevention of absorption of bacteria and their toxins are the first indications in treatment, and this has been best attained by the prevention of peristalsis by the modern Ochsner or old opium treatment, by the application of cold or heat for their effect in promoting local congestion and by the Fowler position which allows the omentum and viscera to descend and form adhesions which have a tendency to confine the effusion and pus to the pelvic region.

Various substances have been used in the abdomen to produce polynucleosis by chemotaxis. Tracey and Buxton have lately reported results from injecting nuclein into the abdominal cavity 24 hours before the inoculation of bacteria, resulting in a marked

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reduction of the immediate general invasion. This reduction they hold to be due to local inflammatory changes in the peritoneum with blocking of the lymph channels. Their conclusions are as follows:

1. Nuclein injected into the peritoneal cavity of a rabbit 24 hours before inoculation of bacteria reduces the immediate systemic invasion to a very marked extent.

2. The protection against lethal doses of bacteria known to be afforded by nuclein is in all probability mainly due to the greatly decreased systemic invasion.

3. This reduction of systemic invasion appears to be brought about by the local inflammatory reaction set up in the peritoneal cavity with consequent blocking of the lymphatic channels.

4. Oil, injected before bacterial inoculations, does not protect mechanically from systemic invasion but only affords protection insofar as it sets up a local inflammatory reaction.

Mikulicz has used this technic in his clinic and reports that in 133 operative cases, in which nuclein was used as a prophylactic injection to prepare the peritoneum, there was a mortality of 11% as compared with a mortality of 31%, nearly three times as great, in similar cases which were not injected. Renner's conclusions from his experience in these cases is as follows:

1. Yeast nucleinic acid subcutaneously injected in man produces a definite hyperleukocytosis after a transient hypoleukocytosis.

2. Its action is as prompt by subcutaneous injection as by peritoneal injection.

3. Under the use of a two percent solution with a total dose of one gram nucleinic acid these subsidiary reactions are neither harmful nor specially disagreeable.

4. Though the statistical basis is small, the results seem to show an increased resistance to the colon bacillus and apparently also to other organisms.

Dr Raymond Petit of Paris reports that at the request of Metchnikoff he made experiments with the injection of salt solution, peptonized bouillon, aleurone, nucleinic acid and various normal sera, but they did not produce the desired afflux of leukocytes to the same degree or with the same effect. The normal sera seemed to produce the greatest polynucleosis which may be utilized for phagocytosis, and that of the horse is the best, for after thus producing a polynucleosis in the peritoneum of

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animals it has been found possible to inoculate with impunity into the serous membranes a number of lethal doses of cultures of cholera vibrios, typhoid bacilli, colon bacilli, and staphylococcus pyogenes. After describing a large number of cases in which the serum had been used he writes, "I have become convinced that we can cure by phagocytosis and that the afflux of polymorphonuclears by means of sterilized horse-serum takes place not only in the peritoneum but in all the serous cavities, in the mucous membranes, and in wounds of all regions."

These results show that we can supply not only the opsonins but also other antibacterial elements of the blood-serum. By the reasoning and experiments used in a paper published 10 years ago in the *Cincinnati Lancet Clinic* of Aug. 13, 1898, I anticipated the above quoted extracts and proved, I think, that the inflammatory lymph or fibrous deposit plays a leading role in the protection of the system from bacterial invasion and promotes healing. If it is not the most essential element for localization, in its absence the severer form of general and diffuse peritonitis occur. The paper reads in part as follows:

"Cohnheim, Virchow and others claim in inflammation that there is leukocytosis or increase of the white blood-corpuscles; but Schaefer, quoting Lowit, W. Hunter, and Sherrington, says: 'Almost any operation upon an animal, especially one involving exposure or irritation of a mucous membrane, will produce an increased percentage of corpuscles (polycythemia) or a corresponding diminution of plasma. This is due not to increased formation of corpuscles, but to exudation of plasma in the inflamed or irritated part.' * * * Having discovered that in the elements of the blood itself everything necessary exists for the primary conditions of healing, my next thought was to collect the blood from the wound and after separating it into its parts by the centrifuge, return the fluid parts and white blood-corpuscles to the wound, eliminating the red corpuscles, as on account of their composition they act as foreign bodies, and only under the most favorable circumstances do not irritate the wound.

"This is not always practicable, and after an attempt to extract the fibrin in the manner described by Schmidt and use it with but little success, I used the serum of the blood of the horse. This serum is rich in fibrin ferment, as can be demonstrated by adding it to hydrocele fluid, which will not clot without the addition of the ferment, and it furnished a sticky, adhesive dressing, which quickly dries and forms a varnish over the adjacent skin, imprisoning the bacteria contained therein. When a pad of gauze is soaked with it and left to dry, it becomes firm and makes a protective dressing which reduces the necessity of suturing to a minimum. * * * I am convinced that the

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preservative used does not have the antiseptic power to produce results such as I have had, but that in the serum and its constituents are found the elements for antisepsis, but this is due largely through the aids to repair, phagocytosis and elimination, though Nuttal and Buchner have shown that serum itself has a distinct germicidal action."

With these considerations of Nature's methods of overcoming peritoneal infection, it behooves us in the management of such cases to follow as closely as we can the indications for treatment which are:

1. Induce localization by muscular and organic rest. To do this withhold all nourishment by the mouth and prevent peristalsis. If there is vomiting, empty and wash out the stomach, for the antiperistalsis and muscular strain are as instrumental in spreading infection as increased peristalsis.

2. Induce hyperemia by applications of heat or cold, thus causing a determination of blood to the part to supply the opsonins for the destruction of bacteria, and to furnish lymph and fibrin to promote localization.

3. Repair leaking or excise injured superfluous organs, thus removing the source of infection and giving the peritoneum a chance to hold the inflammatory conditions within bounds. The irritation of gauze packing stimulates the exudation of inflammatory lymph, while drainage removes the exhausted serum, for it has been demonstrated that the bactericidal power of serum first becomes weakened and then becomes exhausted in the immediate neighborhood of an infected area and must be constantly renewed for continuous phagocytosis, therefore it, with other waste products, should be drained away.

4. Supply the elements necessary for overcoming infection. This is best accomplished by the rectal administration of salt solution which keeps the vessels filled and prevents collapse while the serum is being withdrawn from the circulation to furnish the necessary elements for phagocytosis, localization and healing. When necessary, augment the defensive powers of Nature by the local use of horse-serum.

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EDITORIAL

Optometrist Legislation

The correction of errors of refraction is the most difficult and one of the most highly specialized branches of the practice of medicine. Owing to the special knowledge and training required, the expense of apparatus needed, most physicians have neglected this important part of their calling. Charlatans, always eager to profit by the short-comings of the medical profession, have seized upon this part of our work, and are exploiting the people, to the injury of the health and pocket-books of the latter.

Although the profession has been somewhat remiss in neglecting to treat these patients and the medical schools have not put enough stress upon this subject, and our state examining boards have almost entirely ignored the subject of refraction, yet we believe the ruling of the Ohio State Board of July 7, 1896, fully covers the subject. The following resolution was adopted.

"Resolved, that the act of prescribing and adjusting glasses in uncomplicated cases of visual defects, shall not be held as

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practice of medicine within the meaning of the law, but that the act of prescribing glasses, or of adjusting the same, without the order of a physician, in any case in which the vision cannot be brought up to the normal and in which, in addition to visual defects, there exists any inflammatory condition, organic change or disease of either the constituent or auxiliary structure of the eye, shall be held as practice of medicine, within the meaning of the law."

If the present ruling governing the prescribing of glasses is not sufficient, it could easily be changed, but it is certainly not necessary to create a separate examining board to examine applicants to practice medicine in this specialty, any more than it is to have separate boards to examine them in surgery, gynecology, obstetrics, or skin diseases.

In passing, it might be well to say that this subject of refraction and accommodation is well taught in every reputable medical school, but in many schools it is not obligatory, as it should be. If it were, we would not find reputable practitioners sending their patients to optometrists to have spectacles fitted.

While the ideal condition would be that of prohibiting anyone from selling spectacles excepting on a physician's prescription, such a condition, in the present stage of civilization, could not be enforced, any more than to prohibit the sale of all drugs, excepting on a doctor's prescription.

If the prescribing of glasses is practising medicine, as the courts have held, and it does not seem to be a debatable question, there is no doubt but that our present Ohio law is adequate to meet all conditions.

It is true that bad refraction work, as well as bad surgery, has been done by medical graduates. A few years since it was quite the fashion for the middle aged practitioner, of more or less respectability, generally one who had failed as a general practitioner, to announce that he was going to New York, Chicago, or even abroad, to study diseases of the eye and after "six weeks" absence to return with considerable blowing of trumpets and assume the role of a full fledged eye specialist. The results were sad to behold, but like most epidemics it has run its course. It may be said in passing, that when a recent graduate decides to do a little eye work after his preliminary training in physics, chemistry and biology, his strenuous two years of laboratory work enables him, when he first takes an opthalmoscope in his hand, not only to see the fundus of the eye, but often to make a creditable drawing of it, and within a short time he

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is able to do satisfactory refraction work, such as the most experienced, so-called optometrist could never do. It is just as reasonable for the seller of pessaries to call himself a gynecologist, or the seller of trusses to call himself a surgeon, as that which these spectacle peddlers are trying to do.

The optician, on the other hand, is an ancient and honorable calling. We cannot do without him. His occupation, as compared with that of horse-shoers, stationary engineers and many other similar trades, is more skilful and requires an infinitely longer and exacting apprenticeship. It might even be advisable to have a law providing for the registration and licensing of opticians, who are duly qualified to make and adjust spectacles upon the oculist's prescription. A law similar to that which qualifies druggists to fill physician's prescriptions.

The Emanuel Movement

The growing interest in psychotherapy, on the part of the laity, is due in a great measure to the spread of the cult of so-called Christian Science. The Emanuel Movement, which is an expression of this fact, began in Boston and is rapidly spreading over the country. This movement, as defined by its originators, is, however, radically different from Christian Science in that it fully recognizes the reality of disease, the necessity for medical and surgical treatment, the limitations of psychotherapeutic measures and the necessity for an accurate diagnosis in all cases by a competent trained physician to determine whether the case is a suitable one for such treatment. So long as these conditions are fulfilled there would seem to be little cause for objection to the movement on the part of the medical profession.

In this city at least one minister has established a clinic and certain others, more conservatively, are investigating the matter to see if it is advisable to embark in such an undertaking. The scriptural injunction to the apostles and their successors to "Heal the sick" certainly would seem to the ministers sufficient warrant and, if the words are taken literally and without due consideration of the conditions existing today, there would seem to them to be no excuse for disregarding the command. In these days of scientific medicine, although we really know very little, knowledge has been gained which is most essential in dealing with disease and which is not possessed except by those who have spent years of training along such special lines.

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The opinion of physicians, as to the wisdom of such an innovation as the Emanuel Movement, is not at all unanimous. Some are bitterly opposed to what they consider an invasion of the special field of the physician by the minister. Others are equally enthusiastic as to the results to be attained. The majority, however, are somewhat dubious about the matter, fearing that it will pass beyond control and that in the end great harm may result. The co-operation of ministers and physicians will often be of the greatest value, especially in those cases in which it is necessary to appeal to the patient's higher nature to induce him to give up bad habits. It will also prove of decided aid in inducing the patient to lead a more rational life and to aid him in overcoming abnormal fear, worry or depression, that is having an injurious effect upon his general health. Surgeons will bear witness to the fact that a patient, unruly and hysterical from dread of an impending operation, will often be calmed by the aid of the minister, and his chances of recovery thereby improved, for there can be no doubt that the patient's mental attitude in such cases is of real importance. There is great danger, however, that some ministers will act upon their own responsibility and independently of medical men; the results might then be quite as disastrous as the criminal neglect of the Christian Scientists in such cases as early cancer in which an early diagnosis and active operative interference are imperative if any good is to be accomplished. Any arrangement that does not provide for the direction of the treatment by the physician, and in cases of nervous diseases by a trained neurologist, should not be encouraged.

The Bureau of Vital Statistics

The establishment of such a bureau in Ohio has long been desired and is now an accomplished fact. No longer can we be classified, in this respect, with primitive or uncivilized peoples that have no system of recording such statistics.

It is unnecessary to detail the provisions of the law, as all Ohio physicians have been supplied with abstracts of it. One point, however, has not been made as plain, in the instructions furnished the physicians, as is desirable. We refer to the question: what abortions are considered reportable? What stage of gestation shall be reached before a certificate of birth shall be considered necessary? The only reference to this in the "Duties of Physicians" is in Section 6 (page 5) which provides that "Stillborn children, or those dead at birth, shall be registered as births and

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also as deaths. * * * The term "stillborn" shall be applied to all children dead at birth which have passed the fourth month of utero-gestation. Since it is possible for a fetus to be born before the fourth month with the heart still beating, and hence theoretically alive, the term stillborn would not be applicable, and technically there would be no provision in the law for the report of such a birth.

The reporting of all abortions offers certain difficulties in the early weeks of gestation, since it is not always easy to say at this time that an abortion has occurred. A great many abortions occur at the third month when the fetus is well formed and when there can be little doubt as to what has taken place. It would therefore add greatly to the value of the statistics if abortions at the third month were considered reportable. It may not be deemed advisable as yet to demand that all abortions, even at the third month or earlier, be reported, but later this may be required and it will probably prove of the very greatest value in lessening the prevalence of criminal abortion. The reporting of a large number of such abortions by any one man would at once direct attention to the character of the work he was doing and if he failed to make the reports he would be liable to a fine. His connection with the case, or at least his knowledge of the fact that an abortion had taken place, would be far easier to prove than would be the fact that he had actually induced it, the great difficulty found at present, with the prosecution of abortionists.

Department of Therapeutics

CONDUCTED BY J. B. McGEE, M. D.

Thyroidism: In the *Archives of Internal Medicine* for November, John Rogers and S. P. Beebe consider the treatment of thyroidism by a specific cytotoxic serum. During the past two years they have treated a large number of cases of hyperthyroidism with a specific serum which they believe has a special action on the thyroid gland. They divide the types favorable for serum treatment into two groups. The first are those of typical exophthalmic goiter in the early stages including the incipient, the mild, the severe, and those extremely severe forms which develop very rapidly and have been described as the acute toxemic type resembling malignant endocarditis. It is in this group that they have had the largest percentage of complete success, the most prompt and the most striking results. The second group comprises typical exophthalmic goiter in cases which have existed for some time in subacute form with occasional exacerbations, but without marked secondary changes. There are types, too, that may require combined treatment by which they mean the administration of both the antiserum and a pure thyroid proteid.

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This work is the first attempt to treat disease in the human subject by means of a specific cytotoxic serum, and their conclusions are: (1) The serum has a specific effect in neutralizing the toxic action of the thyroid secretion. (2) As a therapeutic agent it gives results which cannot in many cases be attained by any other medical means. (3) Not all cases presenting cases of thyroidism can be treated successfully with serum because not all cases are purely hypertrophied in origin. (4) The rapid amelioration of symptoms in the acute toxic cases, similar in most respects to the well accepted instances of neutralization of toxin by antitoxin, is a weighty argument in favor of believing the symptoms to be due to the toxic effect of hyperthyroidism. (5) The beneficial results of combined treatment especially in the older cases indicated a dysthyroidism as well as hyperthyroidism as a factor in the production of symptoms.

Cactus: Roland G. Curtin, in the *Therapeutic Gazette* for November, has been using cactus grandiflorus for 30 years and feels that it is a very valuable remedy which the profession generally do not appreciate. The more he uses it in selected cases, the greater is his confidence in it, and he is satisfied that this remedy has a place in cardiac therapeutics. The great trouble with many physicians is that they expect too much from this remedy. It is a mild cardiac tonic, a supporter and a steadier of that organ when in a weak and irritable condition. To use cactus when digitalis is indicated shows bad judgment, or a want of knowledge. Its use in conditions to which it is not adapted has probably been one of the causes of the small favor in which it is now held. He believes it to be a valuable remedy, more especially when used in combination with other heart tonics, lending valuable aid to their action. It is well borne by the stomach, is effective after long usage, and has no cumulative action. It seems to him that cactus stimulates the motor, but more especially the inhibitory nerves of the heart. It strengthens and improves the systole, increases the muscular energy of the heart, and improves the tone of the organ. He has often observed a more tonic effect upon the heart from three minims of tincture of digitalis combined with fluid extract of cactus grandiflorus five or ten drops, and caffein one-fourth to one-half grain, than from a large dose of digitalis alone. His conclusions are: (1) Be sure that a good reliable specimen of the drug is secured, one that has the proper strength, and one that can be depended upon to do the required work. (2) Cactus is a mild tonic stimulant for the heart, acting especially upon the inhibitory nerves of that organ, relieving it of some of the unpleasant symptoms, such as we often find in the nervously diseased heart. In any case, it may subdue the discomfort and sometimes permanently relieves the pain in the region of the heart. (3) It is a valuable adjunct to the other well known heart remedies, by steadying the heart and aiding its tone, helping to support the weakened organ. He emphasizes the point that it is not a strong cardiac tonic, and should not alone be depended on in a seriously diseased heart. (4) Those who expect it to take the place of digitalis do not, he states, know the action of the two drugs, which are essentially different. Furthermore, cactus is in a class by itself, not being like any other heart remedy.

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Locomotor Ataxia: Allan McLane Hamilton, in the *Journal A. M. A.*, for December 5, states that as a rule there is a disposition on the part of physicians, and particularly specialists, to give a prompt and unfavorable prognosis in locomotor ataxia, and to dismiss the patient with a few words of gloomy advice and perfunctory pity. Bearing in mind the luetic causation of so large a proportion of cases of tabes, we naturally turn to the use of one of the two universally used drugs that are available to combat specific disease of all kinds; but it must be admitted that only in a very small proportion of examples of tabes does the use of mercury and the iodids do any natural good. In a small number of suitable cases, say 20%, the employment of the former especially is serviceable. In certain cases in which there were attacks of paralysis of the ocular muscles, the exhibition of iodid or the use of inunction would prove of the greatest service almost immediately and again in the mixed types it is clearly indicated. He has for years used, and with encouraging success, the bichlorid of mercury, by inunction by means of some readily absorbable agent, and this has acted better than any other mercurial salt, except perhaps the protiodid. As to the special symptoms, we should direct our attention to the pains, the ataxia and the cystitis which is so important a feature. The treatment of pain is often difficult, and pyramidon is about the best of the coaltar remedies, but none of them is of much use except in dangerous doses, when the pains are severe, or of long standing. If a rheumatic element can be determined large doses of the salicylates or of aspirin may be used, the most effectual remedy is, of course, morphin, and it is his experience that if used under a physician's direction there is very little danger of producing a habit. Several forms of systematic exercise have been recommended for the ataxia, that of Fraenkel being perhaps the best. As a rule it is best to advise long periods of rest, and to suggest moderate superficial massage, only sufficient to keep up the local tonus of the muscles or to facilitate the emptying of the capillary vessels. Systematic exercise should not be used in cases in which there is much pain, or in which there are gastric crises, or when there is reason to believe that the bones are friable. In about 60% of cases of tabes, there is more or less involvement of the bladder, which varies from mere dysuria due to atony, to paresis and dribbling, and actual cystitis produced by the accumulation of residuary urine is common. In these cases which are numerous it is of importance to wash out the bladder at regular intervals for a long time, and this may be done with a normal salt solution, or a borax solution, while hexamethylenamin may be given well diluted in 10 grain doses, and especially when it becomes necessary to discontinue the lavage for a few days. It must not be forgotten that a considerable number of patients, especially in cases due to shock, trauma or hysteria, in which there is no syphilitic basis, may be cured in a comparatively short time, and by very simple measures.

Magnesium Sulphate: In the *American Journal of the Medical Sciences* for December, Robert T. Miller considers the treatment of tetanus with subarachnoid injections of magnesium sulphate. Meltzer found that magnesium sulphate appeared to possess inhibiting

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power over the processes of the body. His conclusions were that intravenous injections of small amounts inhibit respiration, and cause paralysis of the entire body; that when applied directly to a nerve in a 25% solution it produces complete nerve block; that when injected subcutaneously it produces deep narcosis with complete muscular relaxation; and that a subarachnoid injection of a 25% solution produces immediate anesthesia, and paralysis of the posterior extremities of monkeys. The results in surgical anesthesia were found not altogether practical as the anesthesia did not appear for three to four hours and it persisted longer than was necessary. Two cases of tetanus were treated by the intraspinal injection of magnesium sulphate to control the convulsions, in one successfully and in one unsuccessfully. Since then there have been reported 11 cases of tetanus treated by the injection of magnesium sulphate; eight cases, three of which resulted in recovery, by subarachnoid injections, and three cases by subcutaneous infusions with magnesium sulphate, all of which were successful. To this number the author adds another successfully treated by the subarachnoid injection. A patient in violent spasm, and continuous opisthotonos, was repeatedly reduced to complete and lasting relaxation in the course of a few minutes by an intraspinal injection of magnesium sulphate; a result was thus achieved surely, promptly and safely, which can be but weakly approximated by the usual sedatives and even then after hours instead of minutes. In conclusion, he affirms that by the use of magnesium sulphate, it is possible to achieve complete muscular relaxation in almost all cases of tetanus. From the report of results there seems to be a distinct benefit to the patient in this condition, inasmuch as it prevents the rapid exhaustion due to convulsions, and in most instances has made it possible for the patient to take nourishment.

Sick Headache: In the *New York Medical Journal* for December 5, Franklin C. Clark considers the treatment of sick headache, stating that no special law can be laid down for the treatment of migraine, the hemicrania of medical writers, the name which covers the vast majority of cases of sick headache. As the female sex constitutes the great bulk of its sufferers, sex would seem to be a predisposing cause. Remedial treatment of migraine becomes a treatment of its supposed cause, as well as for the relief of the distressing symptoms to which the disease owes its name. But unfortunately there are no known preventative means, but what are tentative, provisional, and unconvincing, and we are thus confined to the treatment of symptoms over which some remedies seem to exert more power than others. At the outset of an attack of migraine, or on the appearance of certain premonitory symptoms so well known to those suffering from sick headache, absolute rest and quiet should be enjoined, and little or no nourishment be allowed except an occasional draught of water, or a cup of a strong infusion of tea or coffee without milk or sugar. While specifics are unattainable, there are a few remedies which, in a certain proportion of cases, seem to exert a remarkable control over this complaint, as tea and coffee, but of all the drugs thus far known *Paullinia Cupana* or guarana, enjoys this peculiar property most conspicuously, and at one time was regarded as the true specific. In the author's hands it has been very satisfactory, one case

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which had suffered for 30 years having been cured. Guarana should be administered in powders of 12½ grains each, every half or full hour until relief is obtained. Of course, it is the caffein, contained in these remedies, and of which guarana has the largest percentage, to which the benefit is to be ascribed. The dose of caffein must of necessity be smaller, and the best form in which to give this alkaloid he has found is in conjunction with acetanilid and monobromated camphor, the camphor counteracting the depressing effects of the acetanilid, its effects like those of all coaltar products requiring constant watching. Potassium and sodium bromids and other remedies are of pronounced value, all drugs, however, of an uncertain or dangerous character should be avoided, and only those used that experience has proved to be the safest, and the most reliable.

Gelsemium: In the *Medical World,* for December, Wm. Henry Morse recommends the tincture of gelsemium in from 15 to 20 drop doses taken once only, and at bed time, as a means of aborting a common cold, or an attack of acute coryza. All cases that can be aborted at all will be aborted by the gelsemium treatment and the cases are few in which this cannot be done. This treatment, however, will not abort the acute epidemic catarrh that we call "grippe." He has occasionally added tincture of belladonna to the gelsemium, but has never observed that this was of any benefit. When gelsemium is used, nothing else is required in conjunction with it, it alone doing the work required, and moreover there is no tendency to extension of the catarrhal process farther down the respiratory tract. He has always used the tincture but has no doubt that any other good preparation of the drug will be equally efficient. The treatment has been so successful in his hands that he has become quite enthusiastic about it.

The Pharmacopeia: Torald Sollman, in the *Journal A. M. A.,* for December 12, asserts that the last few years have seen a most remarkable revival of interest in the official drugs and preparations. Many men who a few years ago prescribed secret remedies are now turning with the best resolutions to the Pharmacopeia, and to the National Formulary to see what these hold for them. After all the real object of those who strive for reform is not Pharmacopeial prescribing, but scientific prescribing, the use of scientific non-secret remedies such as the work is supposed to contain. The usefulness of the Pharmacopeia to the physician is coincident with the usefulness of the remedies which it contains. What most concerns the physicians is the selection of the substances which are admitted to its pages. To attain its object, so far as the medical profession is concerned, it must in the first place contain the substances which the physicians wish to use. It may be put down as an axiom that the practitioner who does not use the remedy which is best for his patient is not doing his duty. If that remedy is not in the Pharmacopeia, so much the worse for the Pharmacopeia. It should aim to contain only remedies of demonstrated value and superiority, and thus guide and lead the practitioner who will come to it with some confidence that in

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using Pharmacopeial remedies he is indeed using something of value. As the Pharmacopeia is now revised but once in 10 years, Sollman suggests that the new revision committee publish its conclusions as soon as made, monthly if necessary, and that once a year or oftener a supplement be issued so printed as to be readily detached and inserted into the present Pharmacopeia, such supplement becoming official four months after its publication. In this manner, the ground having been fairly covered before the next regular "revision," this, when published, would not be essentially new, but a systematized reprint of the old edition and the new supplements. He is convinced that some such changes must be made if the Pharmacopeia is to become the real standard. He believes that to determine the worth of the articles admitted there would be a critical correlation of three classes of experience. (1) Popular experience as determined by the continued extensive use of the drug. (2) Clinical, represented in the current opinions of clinicians, and (3) Laboratory experience representative of the stricter conditions of control.

Morphinism: Charles J. Douglas, in the *Medical Record*, for September 5, believes that there is no disease more surely curable than morphinism. Morphinism is especially prevalent among intelligent and ambitious people and to such the bondage is most galling and obnoxious. Yet struggle as best they can, escape is impossible without medical aid. It was formerly supposed that the patient must suffer intensely before a cure could be accomplished. Modern medicine has developed a long list of valuable remedies, and many of these are especially valuable in the treatment of morphinism. If these are properly utilized the morphin patient can be carried from bondage to freedom without passing through the period of pain and general distress that was once thought necessary. He does not follow the plan of gradual withdrawal, but prefers that which he has named the "Narcotic Method." It is not only painless but acts with certainty, and precision. There is, perhaps, no form of human suffering more poignant than that caused by the total and sudden withdrawal of morphin from a morphin habitue. It is comparable to a surgical operation, and his plan is to abolish the pain caused by morphin withdrawal on the same principle that surgical pain is abolished, *i. e.*, by keeping the patient either asleep or so thoroughly narcotized during the painful hours that follow the complete withdrawal of morphin, that he experiences no suffering. This abolition of pain is the kernel of the whole problem, and he is therefore kept in a somnolent condition till after the painful withdrawal process is accomplished and then he awakes to the happy realization that, while asleep, the morphin has been eliminated from his system, the chains have been broken, and once more he is a free man. No one specific remedy will accomplish this result. A combination of narcotic or hypnotic remedies is necessary and a dozen different combinations may be required in treating a dozen patients. Remedies of this nature often act very differently upon different individuals. In the treatment of morphinism the physician's armamentarium should include them all. He, however, warns against the use of hyoscin as a very uncertain and often dangerous drug if exclusively relied

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upon. Each morphin patient must be studied and treated individually and, in the treatment of morphinism by some form of narcotism, he has yet to meet his first failure. There is no specific remedy that will satisfy the demand for morphin in the addict, while he is attending to his usual business. Sleep is the only remedy, and it is an infallible one. And in the proper application of this narcotic principle will be found a solution of this important problem.

Picrotoxin: Wm. F. Waugh, in *Merck's Archives* for November, considers the uses of picrotoxin, the principal active element of cocculus indicus. In small doses picrotoxin is a vital incitant and nervous regulator as shown by the good results obtained from its use in rupture of nervous equilibrium from disease of the cerebrospinal axis of the organs. The vast field for its employment is found in spasmodic nervous maladies, essential or symptomatic. Planet considers picrotoxin one of the most powerful remedies in epilepsy, and Gubler advised and employed it in chorea. Westbrook administered it hypodermically in doses beginning with 1-100 grain to 1-50 grain. This was repeated every two or three days. In epilepsy Gubler and Dujardin Beaumetz secured by its use a prompt amelioration, and even disappearance of the paroxysms, a remarkable result in a malady so grave and so tenacious. Laura states that it is efficient in phthisical night sweats, colliquative, and in those of convalescents, especially those that resist atropin. The commencing dose for an adult should not exceed half a milligram, and, as it is rapidly eliminated, it is a safe remedy never accumulating, but is prompt and powerful in action.

Academy of Medicine of Cleveland

The sixty-first meeting was held Friday evening, November 20, 1908, at the Cleveland Medical Library, J. J. Thomas in the chair.

The report of the Council and the report of the Nominating Committee were read. An Auditing Committee was then appointed by the chairman.

The program was as follows:

1. Some Diseases of the Jaws with Illustrative Cases, C. A. Hamann. (Appearing in full on page 18.)

In the discussion W. B. Laffer referred to a case under his observation in which the hypertrophy was due to gout. It was very marked over one molar bone and at the back of the skull. There were tophi in the ears and in other parts of the body. The vertebræ were so much enlarged as to prevent the swallowing of some substances. One could feel the enlarged vertebræ through the mouth. The enlargement had caused an internal strabismus.

J. M. Ingersoll asked if the speaker considered all cysts of the antrum of dental origin, as he had a specimen of a cyst of the internal wall of the antrum about ½ inch in diameter.

W. G. Stern spoke of conditions of incomplete development of the lower jaw. He had seen a case in Vienna in which a boy, after an attack of pneumonia, made very rapid growth in all parts of the body except the lower jaw. Recently he had seen another case in which rapid growth occurred after scarlet fever, the lower jaw remaining small, although the man's height reached 6 ft. 2 in.

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W. I. LeFever emphasized the value of radiographs in these cases. One could diagnose not only growths of dental origin but those of the bones. Pictures could be taken from inside the mouth so that the structures could be seen very clearly and with considerable detail.

W. H. Whitslar thought that torus palatinus was found more often in women than in men. Perhaps from ¾ to 9-10 of the cases were in women. He did not know of any explanation for this.

C. A. Hamann in conclusion said that he had not seen the enlargement of the jaw due to gout and asked whether or not the deposits were urate of soda. Cases of micrognathia, referred to by W. G. Stern, were occasionally seen. In such patients there was a marked temporal ankylosis of the temporomandibular joint. Both plastic and bone operations have been done to relieve the condition but they were not very successful. Micrognathia, when marked, was usually associated with other congenital defects. He had not noted that torus palatinus was more common in women.

2. The Ethics of Specialists, R. E. Skeel. (Appearing in full on page 10.)

In the discussion M. J. Lichty regretted that in the paper no suggestions had been given for remedying the conditions mentioned. He thought that specialism was carried to an absurd degree and that it was reprehensible for every man to hold himself out as a specialist in some particular line. The subject of fee-splitting should certainly be thoroughly discussed. In Chicago it was proved to be very common through the sending of decoy letters to a number of prominent surgeons. Medical men were not so often tempted as the surgeons, since their fees are not usually so large. No physician should consider that he had a mortgage on a patient; personally he wished his patients to consult whom they desired. Patients should be dealt with on a business basis and if a physician referred a patient to a surgeon he should see that he himself received a proper compensation for his services. If fee-splitting existed to such a degree in Cleveland as the speaker indicated it was high time that it should be discussed. Honorable men would not tolerate it.

H. B. Ormsby thought that a thorough understanding between the general practitioner, the specialist and the patient, as to the actual fees of the first two, was all that was necessary. A receipt, stating the general practitioner's fee, should be sent to the patient or head of the family. The fee should be adjusted to the ability of the patient to pay. No person would be refused help by a specialist simply because he could not pay the specialist's usual fee.

L. K. Baker said that there was generally a disposition among physicians to deal fairly and squarely with one another, but their financial affairs were usually managed in a very unbusinesslike way. These matters should be discussed at our meetings just as much as interesting or unusual cases. The subject of fees should be brought up before the Council and an effort made to bring more of the money to the profession that rightly belonged to it and that was slipping away from it; thus the railroads got our services for little or nothing and the department stores and drug stores were getting money that should come to us.

T. A. Burke was convinced that there was a great need for specialists, since conditions arose with which a man, doing general work, felt hardly able to deal: he then needed expert help. This did not mean that every case of conjunctivitis should be sent to the eye specialist. He was absolutely opposed to fee-splitting. The consultant should ask the opinion of the family physician before naming his fee. The fact that the surgeon's fee was as a rule usually so large as compared with that of the family physician was generally the fault of the latter. He must realize that he had a right to demand a fair compensation for making his diagnosis and to charge a fee of one or two dollars for such a service was unfair to all concerned.

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C. L. Graber had practised in the country for several years and had referred cases to specialists in the city without the question of fee-splitting occurring to him. Later, on moving to the city, he discovered that such a practise was far too common, although it was a very hard thing to prove its existence. No set rule could be laid down in defining the relations of the physician and the specialist but each should try to act as if he were in the position of the other. The physician should be paid more for making a diagnosis and for post-operative treatment of cases. Almost any arrangement could be made provided the patient knew the details.

J. M. Fraser had practised for 28 years and had not received a cent from splitting fees. He had learned something new. He had always charged for making a diagnosis and for attending an operation and in the last six years he had collected 97% of his charges. The surgeon should be careful to protect the general practitioner and not criticize him publicly for what perhaps was not his fault. The surgeon who had more work than he could properly attend to should remember the younger men and refer work to them to help them along.

J. M. Waugh had never been approached by a consultant with a proposition to split fees. The specialist was not always to blame, for he knew that unless he did it in some instances he would lose the business. If a specialist found that a patient, referred to him by a general practitioner, had to be sent to some other specialist, he should send the patient back to the general practitioner to name the second consultant.

S. L. Bernstein was surprised to hear that fee-splitting was so common in Cleveland. With the exception of one instance he had not met it in his practise. Not one of his consultants had ever raised the question of a division of fees. He always advised the consultant as to the ability of the patient to pay.

A. R. Baker thought that sometimes the general practitioner was at fault in not referring the patient to a particular specialist. He would say "Go to a specialist," and let the patient select some man who would not know that the case had been referred. Sometimes the patient did not want to go back to the general practitioner and so placed the consultant in a very embarrassing position. If the physician referred, for example, a case of Bright's disease to an eye-specialist for diagnosis and not for treatment, he should say so, and in this way a great deal of friction could be avoided.

W. J. Benner thought there was too much specialism. The consultant too often failed to take up with the physician the question of how much to charge the patient.

W. G. Stern asked whether in case of a consultant's being called in by the family physician and the latter's being discharged by the family, should the consultant consider himself discharged at the same time? He considered that such should be the case.

J. M. Ingersoll thought that while there might be some fee-splitting in Cleveland, the majority of men were honorable and would not do it, they were square with each other and with their patients. He asked if the speaker could suggest any remedy for the evil.

E. O. Houck thought that the specialists were usually at fault, although the trend of the discussion seemed to throw the blame upon the family physician. The fee-splitting was due probably to the difficulty in making a living and this was due, in the cities, largely to the free dispensaries. Much of this gratuitous work should be stopped as most of the patients were really able to pay.

W. B. Chamberlin thought there was a misapprehension as to the fees charged by specialists. The general practitioner instead of sending a poor patient to the specialist and explaining that he could pay but little, very often sent him to the free dispensary. The free dispensaries were a great evil if those able to pay were treated, since it tended to pauperize

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these patients and was an injustice to the profession. Personally he was willing to treat any case for much less than his regular fee if the patient was unable to pay the usual charge.

R. K. Updegraff asked for information as to the Romig case which had recently been exploited by the *Cleveland Press*. In reply the chairman said that he understood upon good authority that the *Press* had received several letters from medical men criticizing their action in this matter and that those in authority were chagrined that they had made such a mistake.

R. E. Skeel, in closing the discussion, was glad to see that so much interest had been aroused in this matter. It was rather a dangerous matter to bring up; just as bad as telling a housekeeper that her house was dirty. While we considered our professional house fairly clean, at the same time a more efficient cleaning was sometimes in order. He purposely took no personal position in the matter. He was not an exponent of the rules of ethics, but as far as fee-splitting was concerned he thought it was not only unethical and unjust but it was unfair and unworthy of a so-called learned profession. He was glad to hear some of the general practitioners say that they had never been approached. Such men were above suspicion and known to be unapproachable. On the other hand recent graduates took it differently. It was a nice thing for a man just starting to get a part of the fees. He could give several instances of this kind and these men did not think it wrong, it seemed to them the correct thing to do. We could not prove these things but we knew they existed. If it were the proper thing to do, those who were not doing it were derelict in their business relations with their professional friends. On the other hand if it were not the proper thing, those who were doing it should stop it. As for its being a matter of only recent occurrence was concerned, he had followed the matter for the past few years and had investigated the conditions in many localities, whenever he had an opportunity. It seemed to be more prevalent in the West, but the East was not free entirely. Men in the West said that it was extremely common there. As to who would collect the fee, that was another question. Making the whole transaction open seemed the solution of the difficulty. It was proper for the surgeon, if he had the opportunity, to insist on the family doctor's being paid. In regard to the case of the blind man, Romig, someone should speak out in regard to the conduct of the *Press*. The hospital with which he was connected was the one, according to the *Press*, in which the operation was to take place. As a member of the staff of that hospital, he was sure that such a patient would not be charged a fee until he had first been offered all the facilities without price. At to whether the consultant should consider himself discharged if the family doctor were, it often happened that the consultant was not called until relations between the patient and family doctor were badly strained and the consultant was expected to smooth things over. As no one owned the patient he could see no reason why the consultant might not continue, but as consultant only.

OPTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The thirty-seventh regular meeting of this Section was held Friday, November 27, 1908, at the Cleveland Medical Library, A. R. Baker in the chair.

The following officers were elected for 1909: Chairman, J. N. Lenker; Secretary, S. Monson; Councillor, J. E. F. Cogan.

L. K. Baker presented a lad with strabismus, the eyes wandered upward and outward under cover. The eyes were moderately hyperopic and vision was 6/6 in each.

W. E. Bruner, in discussing this case, considered it one similar to

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those described by Wm. Campbell Posey as congenital squint. J. E. Cogan did not think it was a case of squint of the oblique muscles.

The program was as follows:

1. Symblepharon with Operation by Skin Graft, by W. E. Bruner. The patient, an elderly male, received a caustic burn of the conjunctiva and cornea of the left eye in the lower cul-de-sac. Vision was 4/45. In the stage of cicatrization there was diplopia outward, and downward due to the adhesion, and for this condition an operation was performed in June, 1908. The cicatricial tissue, which extended deeply into the lower lid in its middle portion, was dissected out. A skin flap, taken from the inner surface of the arm, was grafted into this area and held in place by a piece of hard gutta-percha molded to the lid and perforated to allow the passage of sutures. One double stitch was passed through the gutta-percha, down through the flap, passing about an inch down the cheek, and was brought out upon the face and then fastened or anchored into position. The stitch was kept in place 10 days. Healing was good, the entire flap uniting. All diplopia disappeared. Vision was 6/22 with correcting lenses and on inspection the white skin flap could be seen lying in the lower cul-de-sac, presenting a marked contrast to the red mucous membrane. Discussion by J. E. Cogan, A. R. Baker and C. C. Stuart.

2. Congenital Deformities, Epicanthus and Anchyloblepharon, by Edward Lauder. A patient was presented with these interesting deformities. The term epicanthus was first applied by von Ammon to a condition in which there was an excess of skin between the two eyes about the root of the nose, so that crescentic folds of it overlapped the inner canthi and part of the palpebral aperture. It was generally due to some defect in the development of the bridge of the nose. In Mongolians, who had no bridges to their noses, slight epicanthus appeared to be the normal condition. Among European children, before the bridge of the nose developed, a tendency to it was frequently seen, which disappeared as they grew older. One of the most frequent causes of defect of development of the bridge of the nose was congenital syphilis; hence, as might have been expected, a history of this affection could frequently be obtained in cases of epicanthus. The condition was sometimes associated with congenital ptosis. In severe cases the fold of skin might extend as far over the eye as the inner margin of the cornea; the patient then appeared very much as though he had an internal squint. Anchyloblepharon, or adhesion of the lids, might be expected as a more common congenital anomaly than it was, seeing that the edges of the lids were united during several months of fetal life. This adhesion, however, was only a cementing together of the epithelium. In anchyloblepharon the adhesion was composed of vascularized tissue; it was probable that it resulted from an inflammation of the margins of the lids while they were in contact. It had been met with in several of the cases recorded under the name anophthalmos.

CLINICAL AND PATHOLOGICAL SECTION

The fifty-fifth regular meeting was held Friday, December 4, 1908, at the Cleveland Medical Library, W. G. Stern in the chair.

Following the report of the secretary for the year, the following officers were elected for 1909: Chairman, W. B. Laffer; Secretary, J. Phillips; Councillor, C. F. Hoover.

H. J. Gerstenberger showed a baby with the congenital abnormality of three pairs of supernumerary nipples. One pair was normal in position and appearance, the other two pairs were represented mainly by pigmented round spots, symmetrically placed, above and below the normal pair. F. C. Waite, in the discussion, said that the occurrence of supernumerary nipples was not as rare as supposed. The statistics of the German army showed that over 2% of all the recruits showed them. These

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varied in development, being represented sometimes only by whorls of hair symmetrically placed. The condition reminded us of the normal number of nipples, two to four, in the ancestors of man. The number of nipples was approximately the same as the number of offspring at one birth. Some animals had as many as 11 pairs, varying in position from near the axilla, as in man, down to the pubes. Recently two nipples had been described on the labia majora.

H. Hempstead presented a girl with recurrent oculomotor paralysis. The family history was negative. The child, an only one, was delivered instrumentally but was apparently perfectly normal at birth. An attack of typhoid at eight years was followed by necrosis of the jaw. The nurse had once dropped the child from its carriage. At 11 months she had a ptosis of the right eye persisting for three weeks. She had another attack at two years, and still another at four. This last attack was preceded by pain in the right temple. Attacks of ptosis occurred every six months until the age of seven, then from two to four times a year. When 10 years old she sometimes had attacks at night. Previously her attacks had lasted two to three weeks. At this time an attack began with pain and fever. The next day a paralysis of the right arm and leg developed with ptosis of the right eye and external strabismus. The whole condition cleared up after three weeks, the ptosis and strabismus continuing slightly. The eye had not been normal since. About a week after the paralysis cleared up, it appeared for two or three days. Since the attack last year she had had two similar attacks. The pain in the right side of the head lasted two or three weeks, then there was paralysis for two or three days. In two attacks at Lakeside Dispensary, she showed oculomotor paralysis of the right side and had intense pain in the right side followed by vomiting which disappeared very suddenly. Bromids did no good. Phenacetin gave some relief. The child was bright in school but very nervous. The condition was very rare, about 50 cases having been reported.

W. E. Bruner, in discussing the case, said he had seen two cases in adults. In each recurring attack they usually recovered a little less power than they had before, so that finally there was a permanent paralysis. He had operated this summer on a case for the divergence remaining after the paralysis and the result left the eye in good position. Ordinarily these cases did not respond well to treatment.

W. B. Laffer saw a case in a boy about the same age as this patient. He had had repeated attacks and there was permanent paralysis. The cases were very rare. The findings from a lumbar puncture would have been very interesting; if done at the time of the attacks an increase of cells would probably have been found as an encephalitis was probably present.

W. B. Stern presented a case of congenital hip-disease that had been successfully operated upon. He did this to correct the rather general impression that such cases were very hard to cure. Parents often became discouraged, thinking there was no possibility of relief. This child had had an operation on the right side by the Lorenz method. The gluteal folds and trocanters had assumed the same level and the child walked practically without a limp.

The program was as follows:

1. Ocular Symptoms of Arteriosclerosis, by W. E. Bruner. The cardinal points of arteriosclerosis were outlined and reference was made to the chief forms which the disease might take, with special stress upon the involvement of the small arteries and upon the importance of early diagnosis if treatment was to accomplish anything. The importance of a study of the retinal vessels in ascertaining the condition of the general

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arterial system, and especially of the cerebral arteries, was pointed out and at the same time the limitations which must be placed upon such observations. The prognostic value of such findings was also dwelt upon. Some of the ocular symptoms described and ocular diseases found associated more or less with arteriosclerosis were:

1. Tortuosity of the retinal vessels. 2. Irregularity in caliber of the retinal arteries. 3. "Silver-wire" appearance of the retinal arteries. 4. Loss of translucency in the vessels. 5. Compression of the veins by the overlying arteries. 6. White lines along the vessels. 7. Edema of the retina. 8. Retinal hemorrhages. 9. Thrombosis of the central vein or some of its branches. 10. Obstruction of the central artery or some of its branches. 11. Spasm of the retinal artery. 12. Lesions of the optic nerve as congestion or edema of the nerves, retrobulbar neuritis and optic atrophy. 13. Glaucoma. 14. Paralysis of one or more ocular muscles. 15. Lenticular opacities. 16. Vitreous opacities. 17. Subconjunctival hemorrhages. 18. Asthenopia. A number of cases illustrative of points brought out in the paper were cited and special stress was laid upon the early signs of the disease as manifested in the eye. The aid which the oculist might therefore be able to render the general practitioner in some obscure cases was pointed out, but especially the duty of the ophthalmologist was emphasized when he discovered the early evidences of this disease in persons who supposed themselves to be in good health and came to him merely for glasses or for some minor complaint.

T. A. Burke, in discussing the paper, drew attention to the value of the ophthalmoscope in diagnosis, especially in the early stages of arteriosclerosis, so that treatment might be begun promptly. The disease had been regarded as a necessary sign of old age but it was often one of the sequences of the strenuous life. Kidney disease was often overlooked, for often but a single specimen of urine was examined and this might easily be negative, whereas it was often easily proved by an examination of the eyes. The 24 hour urine should always be examined, especially in life insurance examinations.

E. Lauder said that patients with arteriosclerosis, showing cataract, especially in men over 40, had usually led a strenuous life. He had seen one case clear up. Patients with arteriosclerosis who had thrombosis of the retinal arteries usually died later of apoplexy. The ophthalmoscope should be as widely used as the stethoscope, but unfortunately the general practitioner could seldom use it.

2. An Unusual Case of Mental Default of Traumatic Origin; Operation, Marked Improvement, by H. H. Drysdale. The subject of this paper was a Cleveland school boy, aged seven, male, height four feet. His mental peculiarities were observed by the teacher in charge of the department for defectives at the Madison school. The presentation of this unusual case was justified by the rarity of the phenomena as nowhere in the literature could a similar symptom complex be found.

In the family history no neuropathic or psychopathic taint prevailed. The family consisted of 10 children, seven of whom were older than the patient in question. The parents were not, and never had been, addicted to alcoholic beverages or narcotics of any kind. Both denied having had venereal or specific disease. All the other children were of vigorous mentation.

Personal History: This lad was born at the full period of gestation. The delivery was instrumental. At birth no peculiarity was noticed and the child was considered normal in every respect. In early infancy he suffered an attack of measles but escaped whooping-cough, diphtheria, scarlet fever and acute brain disease. At no time had there been any suspicion of chorea, paralysis, spasms, convulsions or loss of consciousness. When 2½ years old he was playing on the foundation of a building and accidentally fell about six feet, striking his head on a brick, inflicting a wound 1¾ inch long over the right frontal area, one inch above the middle of the supercilliary ridge. Within the year following this incident

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a gradual change in his psychic personality was observed. He suffered from an exaggerated sense of fear and was listless and distracted. It was difficult to make him understand and he could not be trusted to run errands. He persisted in doing many things in a reversed manner. For instance he invariably would lace his shoes from the top down and dress himself contrary to the usual order of modern custom. The family looked upon these oddities in a mirthful manner and no significance was attached to them until he started at school, when six years old. To the teachers it was promptly evident that the boy was deficient. He lacked spontaneous attention and could not learn. In due time it was necessary to transfer him to the department for defectives in charge of Miss Mahoney who made a careful study of the case and discovered that the boy copied all letters and figures in an inverted manner.

The physical examination of the subject was negative. All the reflexes were of normal intensity. The Babinsky phenomena were absent. There was no muscular atrophy or hypertrophy anywhere and in general the muscles were well developed. The gait and station were unaffected. No evidence of ataxia, tremors tics or twitchings could be determined and no anomaly of sensibility. The eyes, examined by Leo Wolfenstein, gave negative findings.

Stigmata Hereditatis: A high-arch palate was evident but this was the only sign that might be considered degenerative.

Cranial Measurements:

Circumference	45.5 cm.	Binauricular arc	27.5 cm.
Volume .....1180.	cm.	Binauricular diam.	11.2 cm.
Naso-occipital arc	26. cm.	Anterpost. diam.	16.3 cm.
Nasobregmatic arc	9.6 cm.	Length breadth index.....	74. cm.
Bregmatolambdoid arc	10. cm.	Facial length	9. cm.

A lumbar puncture was not made.

When the patient was first presented an attempt was made to determine whether the brain was tangibly injured at the site of the external wound or at some remote and inaccessible location or whether the case was one of phrenasthenia (feeblemindedness) precipitated by the injury. A conclusion was made still more difficult by the assertion of Phelps and others that a lesion of the right prefrontal lobe was unattended by mental decadence. The boy, prior to the accident, was undoubtedly bright and mentally alert. His condition when examined 2½ years after the injury was that of a weak-minded youth. Phrenastheniacs frequently make figures in an inverted manner but it was very difficult to account for the pronounced disturbance in writing (dysagraphia) when the motor area of written speech or register of the kinesthetic images of writing occupied the base of the second left frontal convolution and the letter-seeing zone the angular gyrus in right-handed persons. It was further argued that inasmuch as the center of writing and its association tracts were the last portions of the linguistic cerebral basis to be developed in normal brains, and as this boy had barely a year's schooling, it was quite probable that his writing functions were but slightly organized and if such were the case the condition could not be termed a dysagraphia. On the other hand, if the contention of Phelps and others was correct, the brain in this instance must have been disordered on the left side. A lesion involving the left prefrontal lobe would readily account for the boy's psychic enfeeblement. The graphic symptoms however would indicate that the disturbance was more general. As mentioned before the patient was aware that his reproductions were incorrect but he was unable to copy accurately what he saw, so it was evident that there was some interruption in the tracts connecting the visual center and the graphic motor apparatus. It did not seem possible that the definite localization of the lesion in this unusual case could positively be determined. At any rate an attempt to do so would be mere conjecture. It seemed probable, however, that the underlying causal element was an excess of fluid within the cerebral vault, as the symptoms gradually subsided when the tension

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was relieved. No thought of a cure was at any time anticipated from surgical intervention but inasmuch as there was tenderness, headache and marked depression of bone (at least of the outer table) at the site of the external wound, it was deemed advisable to resort to some such measure. The patient was referred to F. E. Bunts, who made an osteoplastic resection of the skull in the right frontal area, including the apparent depression of the outer table. No evidence of an old fracture was found. In examining the dura it was thought that at one point it was somewhat more tense than normal and a small incision was made. Cerebrospinal fluid escaped in a very small quantity but apparently not enough to account for the cerebral disturbances. No other lesion was found and the bone flap was replaced. The patient left the hospital two weeks after admission with no change in his mental condition. On the assumption that the operation had signally failed, as was reasonably to be expected, and presuming that the future of the lad would be clouded in imbecility, it was considered best to have him return to the school for defectives. Within a short time report came that the patient was gradually recovering, was able to copy correctly and that he displayed considerable interest in his studies. An examination was arranged and it was found that there was a marked change for the better; that he could then accurately reproduce letters and figures and that his memory and perceptive powers were very much more keen. At the time of this report, eight months since the operation, he was a responsive child well adapted to his environment and able and willing to learn. From the speaker's close observation of the case he was firmly convinced that the improvement would be continuous and permanent. The condition was not reported as a cure because the boy was not as well endowed intellectually as a normal boy of the same age but it was claimed that the operation had been the means of clearing up some very troublesome symptoms, had given him a richer mentalization and had unquestionably spared him from a life of mental inertia.

C. F. Hoover, in the discussion, asked for a fuller description of the mirror writing and as to whether a trial had been made to see if he could actually write as in true mirror writing.

F. E. Bunts said that the operation was not undertaken with any great hope of relief. There was a decided depression of the outer table and it was thought that there might be one of the inner one too, or possibly a hemorrhage or cyst causing pressure. Absolutely nothing on the inner table suggested a previous fracture. A little thickening of the dura was found but not enough to suggest that the operation would accomplish anything. The pressure was certainly temporarily relieved. Recently there had been wonderful improvement, far more than he had considered possible. He was inclined to attribute most of the improvement to the operation.

H. H. Drysdale, in concluding, said that only in the case of figures was typical mirror writing seen with this boy. Letters, however, were inverted. Later he was given letters and figures to copy and he copied nearly all correctly.

3. Some Further Observations on Clinical Transfusion, by G. W. Crile.

The subject was discussed under the following heads:

Hemolysis: While hemolysis occurred rarely, if at all, in the normal state, it did occur in certain diseases. When there was time hemolysis observations were made on the blood of the proposed donor and the recipient. This test required at least 24 hours. By making the hemolysis test of the proposed donor and of the recipient harmful blood reactions might be obviated, though the reactions in vitro were not necessarily the same as in vivo. In the opinion of the author, agglutination might be disregarded.

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In every instance in 73 clinical cases the technic of both suture and cannula anastomoses was successfully performed.

Pernicious Anemia: In one case of extreme pernicious anemia transfusion was followed by temporary improvement, but almost immediately subsequent to the transfusion there was a rapid hemolysis of the blood transferred. There was no evidence that the course of the disease was modified.

Leukemia: A patient with spleno-myelogenous leukemia that had resisted a carefully planned and well executed medical course, including X-ray treatment, was first bled, then transfused. Though there was a marked temporary gain in vitality, as manifested by an improved well-being and increased appetite and strength, the blood picture showed no change. There was no evidence that the natural course of the disease was modified.

Chronic Suppuration: For the double purpose of lessening the secondary anemia and possibly supplying normally active leukocytes in extreme cases of prolonged intractable suppuration, transfusion was done. There was distinct improvement in the vitality and general well-being. In some instances the improved blood picture did not continue, neither was there any improvement in the local suppurative field. Some of the patients, however, gained markedly in weight and strength, and in every case it was demonstrated that the patient could be raised to a higher state of vitality for the better endurance of surgical measures.

Hyperthyroidism: Neither transfusion nor bleeding with transfusion relieved the symptoms of hyperthyroidism. There is probably a chemical combination in the fixed tissue of the body.

In Tuberculous Peritonitis there was immediate improvement in the general condition of the patients following the transfusion. Very weak persons were transformed into safe surgical risks, permitting safe excision of tuberculous adnexæ. The unusually favorable subsequent course in this group of cases suggested the possibility of special therapeutic value.

In Typhoid Hemorrhages the patients were remarkably revived, but the hemorrhages recurred. The patients were transformed from a dying state to a surgical risk apparently sufficiently good to endure laparotomy. In grave cases the advisability of attempting to secure the bleeding vessels should be seriously considered.

Carcinoma: Transfusion showed no influence on carcinoma.

Sarcoma: Transfusion after excision of sarcoma gave very little encouragement. Transfusion in the inoperable cases cured none.

Chronic Hemorrhage from the Bowels: In five cases of chronic hemorrhage from the bowels, extending over a period of from one to five years, and having resisted the best available medical treatment, transfusion was done. Four of these cases were relieved by a single transfusion, in one slight hemorrhages had recurred, but the remaining four were well. In one instance there was only temporary improvement following the first transfusion, but in the second transfusion gave relief.

Pathologic Hemorrhage Accompanying Jaundice: In one case the hemorrhage was immediately arrested by transfusion, in another hemorrhage recurred.

Hemophilia: In one case of fairly well marked hemophilia an intractable nasal hemorrhage was immediately arrested by direct transfusion.

Purpura: In one case of purpuric hemorrhage transfusion was followed by relief; in another relief was only temporary.

Prevention of Shock: Bad surgical risks had been rendered safe by a preliminary transfusion, or by transfusion during operation. On experimental grounds normal subjects which were to submit to operations involving great surgical shock might be rendered at least partially immune to shock by a preliminary transfusion. The treatment of uncomplicated

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surgical shock by transfusion had been effective. In some cases it seemed to act as a specific cure. In these the symptoms of shock promptly vanished.

Surgical Hemorrhage: In uncomplicated hemorrhage, when treated before the central nervous system has become irreparably damaged by anemia, transfusion was a specific remedy.

CONCLUSIONS

Transfusion, when properly safeguarded, might be safely done. In pernicious anemia, toxemia, certain drug poisonings, leukemia, acute hyperthyroidism, carcinoma, and uremia, it had been of no value. Transfusion of blood from an immune animal had cured sarcoma in dogs. In human sarcoma there was some evidence of value, though it was not yet proved. In pathologic hemorrhage it was of marked value. If done timely, transfusion was specific in acute hemorrhage. In suitable cases it seemed to be almost a specific in the prevention and treatment of shock. Judiciously employed, transfusion would surely prove a valuable, often life-saving resource; injudiciously employed it would surely become discredited.

W. B. Laffer, in the discussion, asked whether the effect on the central nervous system, seen six minutes after hemorrhage, was due to a change in the blood-pressure or to a nutritional disturbance. The sudden withdrawal of the blood-pressure support from the cells of the brain or the sudden increase in this pressure must produce changes that would likely be recognized by our newer staining methods. Sudden loss of consciousness occurred in fainting, when the blood-pressure was suddenly reduced, long before a nutritional change could have occurred, as the cells were still nourished by the olasma surrounding them. The same sudden loss of consciousness was seen in Stokes-Addams disease due probably to the sudden change in blood-pressure. A sudden rise in the pressure with the coincident increase of intracranial pressure was probably, as Kocher and others believed, the cause of the sudden loss of consciousness in epilepsy.

H. Robb said he was much interested in that part of the paper relating to tuberculous peritonitis. He had operated upon 20 to 25 cases in women, in most of whom the disease had probably been primarily in the tubes. After removal of the tubes, if that were possible, and even after simple opening and draining if the tubes were not involved, all the cases did well so far as he had been able to follow them. No doubt recurrences did occur sometimes. In cases without free fluid, or in which the tuberculous process in the tubes was only recognized on subsequent microscopic examination, most of the patients remained apparently cured. He was often surprised to see the marked general improvement and gain in weight. He thought, therefore, that transfusion, while undoubtedly of assistance, played only a secondary part in the recovery from this condition. In reply to a question by the speaker as to whether many of his cases were of the suppurative ulcerative type, or whether they were of the kind having fluid of non-pyogenic origin, he said that some of his cases had been of the suppurative ulcerative type. The natural course of the disease was toward recovery if simple hygienic measures were carried out, whether anything else or nothing else were done for the patient. Patients with tuberculosis who had been given up as hopeless had often recovered perfectly.

F. W. Vincent said that one of these cases of pulmonary tuberculosis, one month after transfusion, was in very good condition.

G. W. Crile, in conclusion, said that in reply to the question of W. B. Laffer, they were conducting investigations along this line, but were not yet ready to report upon the findings. The work of Mott, Stewart, White, Dolly and others showed than in total cerebral anemia rapid degenerations occur. H. Robb had had a very fortunate group of cases and results which he himself had never been able to obtain.

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When no suppuration existed some men obtained good results from tuberculin or by simple hygienic treatment, the latter alone effecting a cure in many cases. When there was a great deal of agglutination of the intestines with exudation the patients were not easily cured, the statistics of most men would show but 40% of recoveries. Another group of cases with not only agglutination but ulceration, abscess and pyogenic infection were not as a rule cured, not more than 10 or 15%.

EXPERIMENTAL MEDICINE SECTION

The forty-first meeting was held Friday, December 11, 1908, at the Cleveland Medical Library, C. A. Hamann in the chair.

The following officers were elected for the coming year: Chairman, G. W. Crile; Vice-Chairman, H. J. Gerstenberger; Secretary, H. D. Haskins; Councillor, Torald Sollman.

The program was as follows:

Description of a 4.9 mm. Human Embryo, N. W. Ingalls.

The embryo belonged to the Hertwig collection in Berlin. It was obtained at operation and there was every reason to believe that it was perfectly normal. It had been cut into serial sections 10 micra thick, perpendicular to the anlage of the anterior extremities. The entire embryo, including the various systems of organs, was graphically reconstructed in wax after Born's method, in Freiburg. Externally the main point of interest was in the region of the four branchial arches, the first and second were of almost equal size, the former having a well developed superior maxillary process. The third and especially the fourth were very much smaller and lay in a sort of depression behind and below the second arch. Later they would be overgrown by the so-called opercular process of the second arch which was not yet present, they then lay in the sinus cervicalis which would be limited above by the lower border of the second arch.

There were 35 segments present at this stage, three occipital, eight cervical, 12 thoracic, five lumbar, five sacral and two coccygeal. This enumeration was based upon the development of the spinal ganglia. Of these, 24 could be seen on the surface of the embryo. In the region of the tip of the tail, the neural tube, gut, chorda and mesoderm were lost in an unrecognizable mass.

The heart consisted essentially of two chambers, the subdivision of the atria by the septum primum had just begun. An interventricular septum had not begun to form. There were four complete aortic arches, the first, second, third and fourth, the sixth was incomplete and represented at its origin from the ventral aorta and also on the roots of the dorsal aorta, between it was interrupted. From the ventral portion of the sixth arch a passage down on either side, or minute vessel into the region of the lung anlage, represented the future pulmonary arteries. There was no fifth arch, it being an exceedingly transient structure. The umbilical arteries had their primary course, *i. e.*, inside the Wolffian ducts, there was, however, an indication of their new course outside these ducts. In the venous system the presence of a number of small vessels, opening into the anterior cardinal and the termination of the posterior cardinal, was of interest. These vessels represented the beginnings of the lymphatic system, the so-called veno-lymphatics. It was exactly at this point that the thoracic duct emptied in the adult.

The urogenital system consisted of the Wolffian body and duct, both perfectly typical just before the duct opened into the cloaca it presented, especially dorsally, an enlargement probably representing the beginning of that portion of the metanephros derived from the Wolffian duct, *i. e.*, the ureter, its pelvis and the straight collecting tubules; the remainder of the metanephros being a derivative of the metanephrogenic tissue or the most caudal undifferentiated part of the mesonephros.

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Corresponding to the four branchial arches there were present internally four entodermal pockets of which only the first three reached the entoderm. In the floor of the mouth just behind the first pocket and in the median line appeared the median thyroid, immediately in front of which was the tuberculum impar; no other derivatives of the internal pockets had as yet made their appearance. The stomach had just begun to rotate and on the right side of it there extended upward a blind pocket from the coelum, the recessus superior sacco omenti, persistent in the adult in certain animals. From the future duodenum there was given off dorsally the dorsal anlage of the pancreas, ventrally the two ventral anlage of the pancreas, the liver and gall-bladder. The connection of the liver with the gut was as yet solid. The remainder of the gut tract was almost perfectly straight, being rather convex ventrally where it was in communication with the omphalomesenteric duct. In the region of the posterior extremities it expanded into the cloaca which was closed ventrally by the thin cloacal membrane, receiving from either side the Wolffian ducts, ventrally and above the allantoic duct and continuing into the tail for a considerable distance as the postanal duct.

The brain showed three primary cerebral vessels; the first was in wide communication with the primary optic vessel. The rhombencephalon showed clearly seven typical neuromeres. The first cranial nerves were represented only by two areas of thickened ectoderm on the anteroventral aspect of the head. The lens was present only as a circular thickened area in the ectoderm overlying the optic vessel. The eighth nerve was represented by the otic vesicle. Of the other cranial nerves, only the third, fourth and sixth could not be found. The hypoglossus possessed the rudiment of a dorsal ganglion, that of Froriep. From the neural crest the ganglion of only the first two cranial nerves had been separated, the first, as usual, was much the smaller.

C. A. Hamann, in the discussion, asked as to the mode of closure of the so-called branchial clefts and the sinus cervicalis. Certain small, fistulous, congenital openings, in various positions on the neck, were often seen. It was generally supposed that they were due to the remaining open of the upper or lower clefts. He thought this was incorrect and that they were remains of the so-called sinus cervicalis. The probe when passed into them always went upward. Could they be due to an imperfect closure of the branchial clefts?

F. C. Waite said that it was a good plan in the technic to run a hot steel needle through the entire paraffin block, in which the embryo was embedded, outside the embryo and with these punctures not in the same straight line. On removing the needle colored ink was allowed to run down the holes, this showed plainly on each section as it was cut from the block. The same points were thus located in each section and the various curves in the vertical axis of the embryo could be accurately reproduced in the model, otherwise it was apt to be either too straight or too curved. In this embryo the liver was about the same size upon the right as on the left, showing that the early human embryo, as well as others, was generally bilaterally symmetrical. The change in the liver occurred later and was correlated with the turning or twisting of the stomach and also with the change in the nutrition, *e. g.*, the change in the distribution of the veins. One spermatic vein entered the renal on one side while the other entered the vena cava. This could only be explained embryologically. All these asymmetries were due to later changes. The occasional transposition of viscera in adults was explainable only on embryological grounds. The study of anatomy from the adult standpoint only and without consideration of the embryology was apt to give wrong impressions. In regard to the development of the precervical sinus, attention was drawn to the similarity in the development of the atrial chambers in the lower fishes, *e. g.*, in Amphioxus.

H. B. Ormsby showed an embryo delivered at the seventh month with the membranes intact. The patient had had the premonitory symptoms of

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pregnancy but had felt no movements and there was no distinct uterine souffle and no fetal heart sounds. The placenta and membranes were as large as they should have been at this time although the placenta did not seem as flexible as usual. The fetus was less than two inches long, very small and undeveloped, as was also the cord.

A. H. Bill thought this specimen might be an example of a Breus' hematoma mole, although in this condition the placenta was usually small and undeveloped also.

J. J. Thomas referred to an embryo delivered at the sixth week in which the fetal heart could be seen beating for several minutes.

N. W. Ingalls, in concluding, said that the sinus cervicalis was due to the overgrowth of the second arch. The third and fourth did not attain the size of the second and hence seemed to lie in a depression formed by the opercular process from the second growing backward over the third and fourth. All external openings in the neck found in later life were congenital remains of the opening below this depression. An internal opening might be the remains of the second, third or fourth slits. He was extremely anxious to obtain young embryos and requested the members to let him have any they secured. The best preservative for them was 7 or 8% formalin.

The method of constructing the models was as follows: The whole embryo had been cut into serial sections, each 10 micra thick. An exact drawing on paper of every other section was made with a magnification of 50. This drawing was attached to a plate of wax 100 times as thick as the section, twice the magnification of the surface drawing, since only every second section was taken. In remodelling an organ, that part of it shown on each wax plate was cut out and these pieces were piled one upon another in serial order, cemented together and the edges smoothed down The technic of making the wax plates was also described. This was done by rolling the wax upon a piece of smooth lithographic sandstone, moistened with turpentine to prevent the wax from sticking. The roller was held the correct distance from the stone by means of two strips of brass corresponding in thickness with the desired thickness of the plate.

Book Reviews

Gynecology and Abdominal Surgery. In two large octavos. Edited by Howard A. Kelly, M. D., Professor of Gynecologic Surgery at Johns Hopkins University; and Charles P. Noble, M. D., Clinical Professor of Gynecology at the Woman's Medical College, Philadelphia. Large octavo volume of 862 pages, with 475 original illustrations by Mr. Hermann Becker and Mr. Max Brodel. Philadelphia and London: W. B. Saunders Company, 1908. Per volume, cloth, $8.00, net; half morocco, $9.50, net.

Those who have been looking forward to the appearance of this second volume have not been disappointed, since the work fully comes up to one's expectations. The plan of the work is unique in this country in that it deals with the whole subject of abdominal surgery and gynecology in a most comprehensive manner and quite as fully as is desirable in a work of this sort. It is really a series of monographs, written by those men most competent to speak upon their respective subjects.

Howard Kelly, in this volume, takes up Operations upon the Spleen; the Surgery of the Ureter; and, with Elizabeth Hurdon, Operations for Diseases of the Vermiform Appendix, in a most satisfactory manner.

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Charles P. Noble and Brooke M. Anspach contribute the article on Surgery of the Kidney, a very comprehensive article of nearly 100 pages, which covers the ground admirably. John B. Murphy's chapter of 132 pages on Intestinal Surgery is excellent. Naturally he is disposed to favor the use of mechanical aids in anastomoses although other methods are given due credit. His remarks upon Ileus are especially good. A lengthy chaper of 95 pages on Diseases of the Female Breast is contributed by J. C. Bloodgood, who uses as a basis the material from 1048 breast cases from the Johns Hopkins Hospital Surgical Pathological Laboratory. Although the breast is not an abdominal organ, yet it is, in a sense, a gynecologic one, and its inclusion in this work seems a wise procedure. B. G. A. Moynihan discusses Operations upon the Stomach, while J. M. T. Finney concludes this chapter with an article on Pyloroplasty. Surgery of the Pancreas, by E. L. Opie, and Surgical Treatment of Diseases of the Pancreas, by Stephen H. Watts, are of interest in drawing attention to this field which has been rather neglected in the past. Tuberculosis of the Peritoneum, by Geo. Ben Johnson, contrasts the widely different views as to the preferable method of treatment. He concludes that "This will depend, for the present, very largely on the attitude of the physician in charge." The great variance in the statistics of different men indicates how much we are in the dark in respect to the best method of handling this condition. Albert J. Ochsner writes on Operations upon the Gall-Bladder, Bile-Ducts and Liver. He strongly advises against operation during an acute exacerbation and emphasizes the value of gastric lavage, absolute rest for the stomach and the withholding of cathartics and food for the relief of gall-bladder pain. G. Brown Miller, in an article of 78 pages, describes Complications Following Operations, in a very complete manner. J. F. W. Ross discusses Cesarean Section and Porro-Cesarean Section. In comparing the indications for Cesarean section with those for symphysiotomy in cases of contracted pelvis the later results of the hebotomy operation are not given sufficient consideration. R. C. Norris, writing on Operations During Pregnancy, advises in the case of fibroids that unless an operation be urgently needed the patient should be kept under observation, since the large majority will go through labor normally. Barton Cook Hirst sums up The Operative Treatment of Sepsis in the Child-Bearing Period in a very satisfactory way. "The surgeon should avoid the operative treatment of puerperal sepsis if possible. . . . He should demand some tangible evidence of those forms of sepsis that are amenable to surgical treatment." He offers this solution of the difficult question as to what to do in such cases. Extrauterine Pregnancy, by J. Whitridge Williams, is thoroughly discussed, especially from the pathologic standpoint. An extensive bibliography is added. Penetrating Wounds of the Peritoneum, by F. R. McRae; Hernia, by G. L. Hunner; Operations for Inguinal Hernia in Men, by Edward Martin, and The Use of Drainage in Abdominal and Pelvic Surgery, by Brooke M. Anspach, are all very satisfactorily written.

The illustrations of Brodel, Becker and others deserve great praise. In no respect do the modern works surpass the older ones than in this respect. A good illustration will do more to explain the technic of an operation than many lines of text. These are of the very highest char-

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acter. It is impossible in this brief review to draw attention to a great many other points of excellence of this work. Its success will be assured.

A Text-Book of Diseases of Women, by Chas. B. Penrose, M. D., Ph. D., formerly Professor of Gynecology in the University of Pennsylvania. Sixth Revised Edition, Octavo of 550 pages, with 225 original illustrations. Philadelphia and London. W. B. Saunders Company, 1908. Cloth, $3.75 net; half morocco, $5.25 net.

That this is the sixth edition is sufficient testimonial of the book's popularity. There are but few criticisms to offer in a work of such general excellence. In the opening chapter there is a statement which we cannot wholly endorse, viz., "The average healthy woman in this country is very much inferior in physical health and endurance to the average man, and this inferiority is tremendously increased when she becomes sick from any of the diseases to which her sex is liable." After watching many apparently hopeless cases of puerperal septicemia, ruptured extra-uterine pregnancy, and gonorrheal peritonitis we must confess that we cannot accept the author's view in this respect.

Chapters II-VII on Methods of Examination and Diseases and Injuries of the External Genitalia and Vagina are all that could be desired in a work of this scope. Chapter VIII on the Position of the Uterus and the Mechanism of its Support is most clearly written. Under Anteflexion of the Uterus, the use of the stem-pessary is condemned and no mention is made of the favorable results obtained by some gynecologists from this device.

The chapter on Retrodisplacements of the Uterus is especially good, particularly the detailed directions for the proper application of pessaries. The author's personal statistics of ventrosuspension for retrodisplacements make a splendid showing for this procedure. Diseases of the Cervix are carefully and concisely treated. In the remaining chapters we find little to criticize and much to commend. The relationship between chorio-epithelioma and hydatidiform mole is not mentioned. The author states under tubal pregnancy, that rupture of the tube is the rule, although recent statistics show that this occurs in only about one-fourth of the cases. The chapters on Disorders of Menstruation, The Menopause and Gonorrhea in Women are admirable.

Altogether the volume is an attractive one. The illustrations, as a rule, are excellent and the text is very clear. We predict a continuance of the popularity of the book with medical students as in the past.

The Arteries of the Gastro-Intestinal Tract, with Inosculation Circle, Anatomy and Physiology with Application in Treatment. Byron Robinson, B. S., M. D., Professor of Gynecology and Diseases of the Abdominal Viscera in Chicago College of Medicine and Surgery (Medical Department of Valparaiso University), Consulting Surgeon, Mary Thompson Hospital for Women and Children, Chicago, Ill. Price, $1.50. Chicago Medical Book Co., Chicago.

As its name plainly indicates, the above monograph deals with the arterial supply of the digestive tract. In a most thorough and painstaking manner its distinguished author describes, and with extraordinary detail, the arteries here concerned and the bearing of their course and

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distribution upon the functionating of the viscera they supply both under physiologic and pathologic conditions. The treatment is very clear and concise, although frequent repetitions of the more important and constantly recurring points are of necessity present. The accompanying illustrations, although quite unostentatious, are very well suited to the purpose of the book, clear and easily grasped they represent the original material which in the text is worked over and applied to particular cases. "Blood cures disease," we are told repeatedly and "the function of the 'Inosculation Circle' is to congest its peripheral viscus and to transport blood volume from one viscus to another." The burden of the whole work is the great functional importance of this free "inosculation circle" whether in health or disease, the paramount value, particularly to diseased and weakened tissues, of "dynamic blood," *i. e.*, blood that circulates, and the importance of the recognition of the facts by physicians and surgeons in order that they may better imitate nature in the cure and prevention of disease by influencing the flow of blood in these vessels as each case may demand. The writer recognizes the following principal circles: the concentric gastric circles, ileocolic circle, enterocolic circle, gastro-enterolic circle, pancreatic circle and ileocolic arches. Along with the detailed and extended description of the usual and many unusual types of arterial branching there is found their significance and application in particular cases. For the surgeon, for whom the importance of the arterial supply of the abdominal viscera is hardly to be overestimated, as well as for the medical man, whose interest, although more indirect, is none the less vital, this book should have a distinct and constant value.

On Infantilism from Chronic Intestinal Infection, Characterized by the Overgrowth and Persistence of Flora of the Nursling Period. A study of the clinical course, bacteriology, chemistry and therapeutics of arrested development in infancy, by C. A. Herter, M. D., Professor of Pharmacology and Therapeutics, Columbia University. The Macmillan Company, New York, 1908.

In this interesting work the author gives his opinion, based upon the prolonged observation of five cases, as to the cause of infantilism. From the title one would imagine that he accepted as definitely proved that the condition is due to an infection of the intestinal tract by an organism, or group of organisms, found in the stool of normal nurslings; but it seems that he simply considers this probable and wisely realizes that the absolute proof of a causal relation between infantilism and the persistence of the bacterial flora of the nursling's stool is still lacking. He has added to the list of known groups of bacteria one organism which he isolated from the stools of cases of infantilism, and from those of normal breast-fed and bottle-fed infants. (The description resembles very much that of the "blaue bacillus" of Escherich and Salge.)

The metabolism experiments have shown, (A) a poor absorption of fats and carbohydrates; also of calcium and magnesium, and (B) a too small retention of nitrogen. This fully explains the standstill in growth. As signs of excessive decomposition in the intestine were found, (1) A rise in the ethereal sulfates. (2) Pronounced indicanuria. (3) Increased phenols. (4) Increased aromatic oxyacids. The acholic appearing stools,

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which are often present in this condition, are not due to an absence of bile, as the author was able to show moderate quantities of bilirubin by alcoholic extraction. (According to Langstein, this is due to a transformation of bilirubin into the colorless urobilinogen *via* uroblin.) The treatment consists in dietetic, hygienic and pharmacologic measures, of which the first two are the most important. The author finds in gelatin an ideal food for these patients, because it has no trytophan nor tyrosin nucleus and therefore cannot yield indol, skatol, indolacetic acid, indolpropionic acid, paraoxyphenylacetic acid nor paraoxyphenylpropionic acid which are supposed to cause the muscular fatigue and nervous irritability of the children. This little book should be read by every one interested in children's diseases.

The Practitioners' Visiting List for 1909. An invaluable pocket-sized book containing memoranda and data important for every physician, and ruled blanks for recording every detail of practice. The Weekly, Monthly and 30-Patient Perpetual contain 32 pages of data and 160 pages of classified blanks. The 60-Patient Perpetual consists of 256 pages of blanks alone. Price by mail, postpaid, to any address, $1.25. Thumb-letter index, 25 cents extra. Descriptive circular showing the several styles sent on request. Lea & Febiger, Publishers, Philadelphia and New York.

A very convenient visiting list containing, in addition to the space for recording the details of practise, a quantity of useful information such as dentition tables, weights and measures, notes on urinalysis, incompatibilities, poisons and antidotes, table of doses, therapeutic reminders, etc. The record is arranged for the daily items of practise, births, deaths, vaccinations, addresses of patients and nurses, cash account, etc. The list is already well-known to many of our readers.

Surgical Memoirs and Other Essays. By James G. Mumford, M. D., Instructor in Surgery, Harvard Medical School; Visiting Surgeon to the Massachusetts General Hospital; Fellow to the American Surgical Assn.; etc. Illustrated. Price, $2.50, net. Moffat, Yard and Co., New York, 1908.

This collection of essays, mostly biographical in character, is extremely interesting to the student of the progress of medicine. The sketches of the lives of the notable men in medicine of the past are written in a very readable manner and aptly portray, not only the accomplishments for which they are famous, but also their individual peculiarities and eccentricities, which adds greatly to the human interest of the narratives. To the local profession the work will have a special attraction because two of the addresses were delivered in this city, one, Studies in Aneurism, having appeared in a recent number of this JOURNAL. Those who heard the author deliver these two addresses will be glad to avail themselves of the opportunity to secure this volume. Those essays dealing with the men who played so prominent a part in the development of medicine in the East, especially in Boston, are especially good, as the author, a Boston surgeon, is specially fitted to act as their biographer. The book should find a place in the library of every man who takes a broad view of medicine.

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The Doctor in Art. Twenty-five reproductions of world-famous masterpieces. Edited with authentic text by Charles Wells Moulton. The Douglas Publishing Co., 725 Ellicott Square, Buffalo, N. Y.

The majority of these pictures are by modern painters, such as, for example, Luke Fildes "The Doctor." A few, however, are from the old masters. The work has been well done and the makeup of the book is quite tasteful. Descriptive notes accompany each of the pictures and give some of the details as to the artist. The work should have a hearty reception at the hands of the profession.

The Medical Record Visiting List or Physicians Diary for 1909. New Revised Edition. Wm. Wood & Co., Medical Publishers, New York.

The Medical Record Visiting List is an old friend and former editions have been reviewed in these columns before. This year's edition has been revised to increase the amount of matter calculated to be useful in emergencies and to eliminate such as might better be referred to in the physician's library. The list is very well arranged and will be found a convenient and time-saving method of keeping a journal record.

Ohio State Board of Medical Registration and Examination

EXAMINATION PAPERS DECEMBER 8, 9 and 10, 1908

ANATOMY—1. What are aponeuroses and what office do they perform? 2. Describe the mammary gland, its structure. 3. Describe the clavicle. With what does it articulate? 4. Describe the thyroid axis, giving branches and their distribution. 5. Enumerate the bones of the carpus in rotation. 6. Give branches of the fifth cranial nerve, their points of exit from the cranium and their distribution. 7. What are sinuses and where found? 8. Where and what is the pouch or cul-de-sac of Douglas? 9. Name the muscles which bound Scarpas triangle. 10. Name the tunics of the eyeball. The humors.

PHYSIOLOGY—1. Describe the sense of taste. 2. Describe, as briefly as possible, the composition of the blood. 3. What physical factors are concerned in blood-pressure? 4. What artery carries venous blood, and what vein carries arterial blood? Why? 5. What is peristalsis? Describe that of the stomach. 6. Describe the salivary glands. What is the function of their secretion? 7. What is glycogen and how is it formed? 8. Describe a diet to reduce or prevent the formation of fat. 9. How is oxygen conveyed to the tissues? 10. Explain how valvular insufficiency produces disease of the kidney.

CHEMISTRY—1. In a specimen of urine, specific gravity of 1030, for what would you test? Give test. What disease would you suspect? 2. Explain the constitution of the fats and the process of saponification. 3. What impurities in water can be determined by chemical tests? 4. What is the function of Na Cl in the animal economy? 5. What is sodium hyposulphite and its uses? 6. What compounds are known under the name of carbohydrates? 7. To what is the acidity of the gastric juice due? How would you determine same? 8. Name two antiseptics, two disinfectants, and two deodorizers. 9. What is amyl nitrite? Give its properties and uses. 10. Give the properties and uses of formaldehyde.

SURGERY—1. Give the symptoms of suppuration in pelvis of the kidney. 2. Give three methods of disposing of the appendiceal stump. 3. Give briefly the surgical anatomy of the common bile-duct. 4. Describe a method for correcting deviated septum. 5. Classify fractures and give

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treatment of a green-stick fracture. 6. Classify dislocations and give treatment of dislocated shoulder. 7. Describe osteoma and give treatment. 8. Give in detail surgical treatment of tonsils and adenoids. 9. Give symptoms and surgical treatment of vesical calculi. 10. Give treatment of urinary retention from enlarged prostate.

MATERIA MEDICA AND THERAPEUTICS (REGULAR)—1. What effect does chloroform anesthesia have upon blood-pressure? What are its signs of danger and how combat it? 2. State briefly the dietetic and therapeutic principles which should govern the treatment in a beginning arteriosclerosis. 3. In what respect does the red iodid of mercury differ from the yellow iodid? In what amount is each given? 4. Describe the physical properties of guaiacol carbonate; give some of its therapeutic uses. 5. What is Basham's mixture? Give its pharmacopeial name and some indications for its use? 6. Give some therapeutic indications for transfusion. 7. What would enable you to recognize poisoning by the cyanid group? 8. Suggest a diet for a patient with typhoid fever of moderate severity and without complications. 9. What form of arsenic is used in medicine? State the preparations that are chiefly employed and how given. 10. What is an idiosyncrasy in therapeutics?

MATERIA MEDICA AND THERAPEUTICS (ECLECTIC)—1. Name two drugs used to regulate blood-pressure and detail symptoms which would give each the preferment. 2. Give synonyms, uses and dosage of hydrastis canadensis. 3. Tell what you know about thuja occidentalis. 4. What are alteratives? Name five. 5. What is the source of apis mellifica? Indications for use? 6. What is Fowler's solution? Donovan's solution? Uses of each? 7. Classify poisons and give examples of each class. 8. What are the properties of phytolacca? What symptoms call for its exhibition? 9. From what is true salicylic acid obtained? Synthetic salicylic acid? Give therapeutics of the drug. 10. Name five hypnotics. When used. Dose.

MATERIA MEDICA AND THERAPEUTICS (HOMEOPATHIC)—1. Define homeopathic materia medica. 2. In what form, and why, are homeopathic remedies so prepared? 3. Define a prophylactic and give an example. 4. What is an antidote? Give an example. 5. Name two remedies from the vegetable kingdom and give their indications. 6. Name two remedies from the mineral kingdom and give their indications. 7. Name two remedies from the animal kingdom and give their indications. 8. Give indications for three fever remedies. 9. Differentiate antimonium crudum and tartar emetic. 10. Differentiate sulphur and hepar sulphur.

PRACTICE AND PATHOLOGY—1. Describe the technic of the laboratory diagnosis of diphtheria. 2. Differentiate between morphin narcosis, uremic coma and alcoholic coma. 3. Differentiate between eclampsia and a convulsion due to hysteria. 4. Differentiate between acute appendicitis and enlargement of the gall-bladder. 5. How is bone repair accomplished after fracture? 6. Give symptoms and treatment of intestinal hemorrhage of typhoid fever. 7. Define constipation; how would you treat it? 8. Give the symptoms and treatment of ptomaine poisoning. 9 Give the pathology, symptoms and treatment of dysentery. 10. Define and classify auto-intoxication.

PHYSICAL DIAGNOSIS—1. Mention aphasic symptoms with reference to localization of the lesions. 2. Mention diagnostic indications from the character of the cough. 3. What pathologic significance is derived from a naked-eye examination of the sputum? 4. What pathologic meaning is found in pulsating jugulars? 5. Mention the alterations of the field of vision and their pathologic significance. 6. Give diagnostic significance of the fur or coating of the tongue. 7. What diagnostic hints are obtained from enlarged lymphatic glands of the neck? 8. What pathologic conditions may be ascertained from the palpation of the stomach? 9. What are the indirect effects of the valvular lesion on the lungs? 10. What

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pathologic indications are derived from an abnormal area of dulness in the cardiac region?

OBSTETRICS—1. When is ballottement available as a sign of pregnancy? How is it obtained? What value attaches to this sign? 2. What is the cause of face presentations? What danger attends them? 3. What advantage is secured to mother and child by flexion of the head at the brim? 4. Make a differential diagnosis between pregnancy and ascites. 5. What is the vertex? 6. Name the longest and shortest diameters of the fetal skull and give their measurements. 7. Give your reasons for recommending Cæsarean section in a given case rather than craniotomy. 8. Where is the fetal heart usually heard in R. O. A. 9. How distinguish one shoulder from the other when the hand and arm cannot be reached? 10. What data, obtained wholly by external examination, would lead you to suspect a breech presentation?

DISEASES OF WOMEN—1. Give etiology and treatment of acute mastitis. 2. Give etiology and treatment of phlegmasia alba dolens. 3. Give leading causes of chronic pelvic congestion. 4. Classify pelvic tumors. 5. Give early symptoms of uterine cancer.

DISEASES OF CHILDREN—1. Differentiate between peritonsillar abscess and torticollis. 2. Give in detail your treatment for the removal of the tapeworm from the intestine. 3. What are the physical signs of empyema? 4. How would you treat enuresis? 5. Give the etiology of acute otitis media?

Medical News

The Cleveland Medical Library Whist Club met Thursday, December 1, at the Library.

The Charity Hospital Medical Society met Wednesday, December 9. The program was as follows: Report of Six Cases of Head Injuries, F. E. Smith; Presentation of Cases, R. A. Jewett; Presentation of Interesting Pathologic Specimens with Report of Cases, R. A. Bolt.

The St. Alexis Hospital Alumni Association met at the Hollenden, Thursday, December 3. The program was as follows: Common Obstetric Operations, E. O. Houck; Report of Cases of Cerebrospinal Meningitis, A. M. Cheetham; Certain Uncommon Forms of Abdominal Pain, B. Peskind.

The Lake County Medical Society met Monday, December 1, at the Parmly Hotel, Painesville. After the presentation of cases and the election of officers for 1909, C. C. Stuart, of Cleveland, presented a paper entitled, "Some of the Problems of Ophthalmology."

The Annual Meeting of the Cleveland Medical Library Association was held Monday, December 14. The address of the evening was delivered by the Vice-President, D. H. Beckwith (appearing in full on page 1, of this issue). A fuller report of the proceedings will appear in the next number of this Journal.

The Philadelphia North American of November 29, 1908, contained a very complete and satisfactory apology for its misquotation of the address of S. Adolphus Knopf, of New York, before the National Association for the Study and Prevention of Tuberculosis, held in 1907. Reference to this was made in an editorial in this Journal.

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P. A. Jacobs, 664 Rose Bldg., who has been working with Sir A. E. Wright, of London, has opened a laboratory for work in vaccine therapy and opsonic determinations.

A. F. Furrer has removed his residence from 9110 Wade Park Ave., to 1878 East 79th St.

N. T. B. Nobles has assumed the editorship of the Cleveland Medical and Surgical Reporter, the organ of the homeopathic profession in this city.

The first meeting of the new Medico-Legal Section of the Academy of Medicine of Cleveland will be held Friday, January 29, 1909. It is proposed to hold the meetings on the fifth Friday of those months in which five Fridays occur.

The sale of the Red Cross Christmas stamps last month proved a great success. The proceeds from the local sales are to be devoted to the Antituberculosis League, of this city.

The Lakeside Hospital Medical Society at the December meeting presented the following program: 1. Report of Case, with Exhibition of Specimens, of Thrombosis of the Longitudinal Sinus from Multiple Thrombi of the Cerebral Veins, D. Marine and J. J. Thomas. 2. Presentation of Case of Syphilitic Arthritis, C. L. Cummer. 3. Report of Case of Lobar Pneumonia with Crisis Delayed 32 days and Two Cases of Gastric Tetany, J. MacLachlan. 4. Presentation of a Case of Sloughing of the Scrotum, W. C. Martin. 5. Exhibition of Pathologic Specimens:—Cystic Kidney, Carcinoma of Rectum, Carcinoma of Jejunum, Tuberculous Cavity of Lung, S. Haas.

Deaths

John C. Ireland, of Cincinnati, died November 28.

Orin S. Mills, of Gallipolis, Died November 24, aged 48.

John N. Poage, of Cincinnati, died October 29, aged 83.

Charles D. Noble, of Oberlin, died November 16, aged 65.

John H. Winn, of Rio Grande, died December 5, aged 59.

David McClure, of Cincinnati, died November 1, aged 49.

John A. Lindsay, of Salineville, died December 3, aged 75.

Miner Wadsworth, of Hoytville, died December 8, aged 54.

John E. Russell, of Millersburg, died December 8, aged 48.

Edgar A. Stewart, of Dayton, died December 10, aged 41.

Thos. M. Lanahan, of Southington, died November 28, aged 39.

Sylvanus F. Cosgrove, of Swantown, died November 23, aged 61.

Thos. C. Tipton, of Williamsport, died November 27, aged 80.

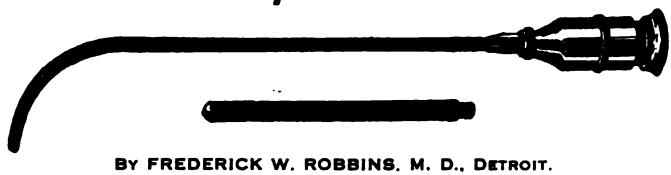
Levi F. Rinehart, of New Lexington, died December 13, aged 68.

James M. Harris, of Yellow Springs, died recently in Cuba, aged 70.

George W. Sanor, formerly of Columbiana county, died November 18, aged 73.

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A New Instrument for Applying Ointment to the Deep Ursthra.



BY FREDERICK W. ROBBINS, M. D., DETROIT.

The special advantages of an ointment over a liquid, whether soothing, antiseptic, astringent or absorbent, lies in the fact that its action may continue over many hours. It is well known that ointments made up with lanolin as a base will adhere to the mucous membranes for upwards of twenty-four hours, even though frequently washed by the urine.

Method of use: Fill the cup with ointment and press down with a spatula so that no air spaces may be in the cup. Introduce the plunger and screw slightly until the ointment appears at the end of the urethral tube. Lubricate and gently introduce to the lowest point desirable to reach; then, while turning the plunger, slowly withdraw the instrument the length of the surface to be medicated; now stop turning the plunger and withdraw the instrument.

Advantages: Ease of filling the cup; accuracy both in amount and location of medicine; instrument easily kept clean; the short tip can be used for rectal applications. It is made without any leather washers, and therefore can be sterilized by boiling. Made of metal highly nickel-plated.

Price, $2.00, Postage 10 cents.

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EXCLUSIVE PAGE

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Coprologico-chemical studies of hemorrhoidal cases were made by Dr. Freiherr von Oefele, of Neuenahr (*Deut. Aerzte-Zeitung*, Nov. 15, 1908).

Hemorrhoids and constipation by no means always go hand in hand; rather are they apt to exclude each other. For hemorrhoidal patients feel the passage of feces so severely, because of the anal distention caused thereby, that they persist in the use of purgatives until they attain very soft feces. Even these, however, arouse a most unpleasant sensation and a subjective feeling of constipation; but analysis of the feces will show a deficiency of solids and a large percentage of moisture. Generally speaking, a patient with hemorrhoids uses purgatives more than is good for him, as this involves waste of unutilized nutriment.

The layman is also under the impression that the use of suppositories, such as anusol, causes softening of the feces, because defecation is rendered so much easier. This, however, is not the case, and is a factor in their favor. Thus in one case the solid contents were 5.48%, and under anusol treatment rose to 7.68%, later falling to 5.50%. Under the subsequent use of one Anusol suppository every week there was a defecation morning and evening—an improvement over the previous diarrheaic condition of the patient. Generally, he found the dry contents of stools to rise under anusol treatment, but, as stated above, the relief from straining passages causes the patients to think that the stools had been softened by the suppositories. A decrease in the quantity of feces, noted by some patients, is explained by the desiccant action of the remedy and the diminution of mucosal secretion in the intestine.

During hemorrhoidal bleeding the ash contents of the excrements generally sink far below normal. Von Oefele made coprological examinations during periods without marked bleeding and therefore of feces having favorable ash contents. In

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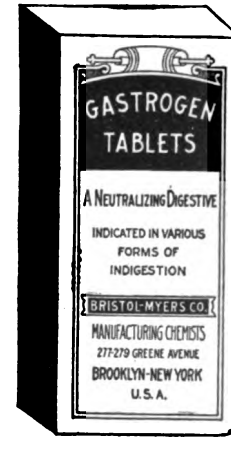
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these, use of anusol suppositories increased the ash contents in 10 out of 14 cases.

In hemorrhoidal subjects a large portion of the fecal ash is water-soluble, while in healthy persons only a small part is soluble in boiling distilled water. Two patients, whose stools showed especially unfavorable solubility, were treated with anusol suppositories. In one, whose soluble ash was equal to the insoluble ash, the former fell 13% in 17 days. In the other the soluble ash content was 45% greater than the insoluble, and after 4 days of anusol the former fell 14% below the latter, and finally to 67% less—a total fall to less than one-fourth of the original amount. He thus found that in hemorrhoidal patients treated with anusol the pathological excess of soluble ash decreases, and this decrease is a definite one.

The malproportion between soluble and insoluble ash is especially great in severe hemorrhoids. For in the healthy subject the chief portion of the katabolic products yielding insoluble ash is excreted by the colon, while the portion yielding soluble ash is eliminated by the kidneys. But in hemorrhoidal disease the local conditions and the fecal examination show that the affected colon is impaired in its ability of eliminating insoluble materials. Moreover, in hemorrhoids, undigested nutriment and blood and mucus are freely present; and these contain abundant soluble mineral substances and very little insoluble ones.

Before use of anusol suppositories the feces frequently contained epithelia and mucous shreds. These constituents lessened and were often superseded by mucous flakes. The healing process in the depths of the mucosae began; there was a mobilization of leucocytes, sometimes evidenced by their appearance in the feces; and the products of the chronic catarrh disappeared —so that coprological examination gives results, on the basis of which the use of anusol suppositories in hemorrhoidal conditions appears commendable.

ARHOVIN.

Dr. Blum, Medical Director of the Salzerbad Sanitarium, Germany. Therap. Centralblatt, September 28, 1908.

The author narrates a series of gonorrheal cases in which arhovin was used locally as well as internally, and acquiesces

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in the favorable opinion of the other writers. He never saw untoward effects, such as anorexia, eructation, renal irritation or exanthema. Taken by mouth, arhovin lessens in a short time the subjective disturbances of acute as well as of chronic gonorrhea. It is inhibitive of gonococcal growth. Even chronic neglected cases were treated successfully with it, and often cured in six weeks. Complications are more rare and run a more benign course. Cystitis and pyelitis of both gonorrheal and non-venereal origin do well under it. Urinary tenesmus and pains generally soon diminish; the urine becomes clearer and attains a higher degree of acidity. The local use of arhovin also often gives results that leave nothing to be desired.

In a paper on "Newly Recommended Remedies" Dr. Schaeffer of Giessen describes arhovin, which he has found an internal and topical antigonorrheaic of prompt and non-irritant action, and says (*Der Prakt. Arzt*, July, 1908):

Acute gonorrheal anterior urethritis disappears in about three weeks, even when—as was the fact in one of my cases—gonococci are abundantly present. Injections of arhovin (in olive oil solutions, up to 5%) should be begun after the cessation of the stormy stage. Patients who can not carry out injections, insert arhovin bacilli, and females use arhovin globules.

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—SIR HENRY THOMPSON, Diseases of the Urinary Organs (1879), p. 101.

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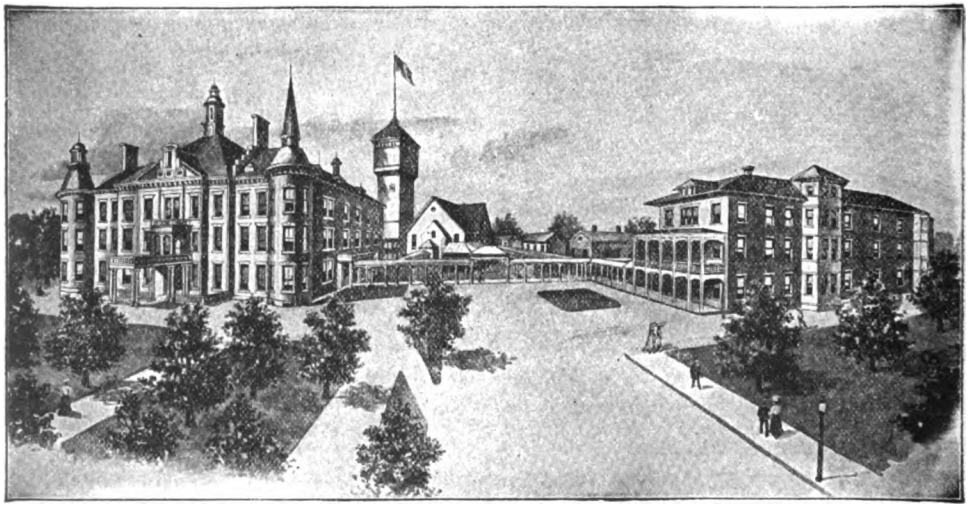
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The Cleveland Medical Journal

VOL VIII FEBRUARY, 1909 No 2

Medical Cleveland in the Nineteenth Century

By H. E. HANDERSON, M. D., Cleveland.

The purpose of the following paper is to present, in a concise and convenient form, the chief data relating to the history of medicine in Cleveland during the century which has just terminated. It will, therefore, be rather a "chronicle" than a philosophical history, though occasionally the relation of cause and effect may be noticed. For the sake of brevity, biography will be indulged in very sparingly, and only when it seems demanded by special circumstances, but the years of birth and death of the more prominent characters will be introduced in parenthesis.

The earliest physician to tread the soil of our city was, doubtless, Dr Theodore Shepard, the medical officer of the surveying party of the "Connecticut Land Company," which, under the direction of Moses Cleaveland, laid out the city in 1796. Dr Shepard also accompanied the second surveying party, which reached Cleveland June 1, 1797, but I find no evidence that he ever became a resident here, or practised his profession among our citizens. Indeed, for the first fourteen years of the infant settlement, no physician was located nearer to Cleveland than Painesville, Hudson, Wooster or Monroe.

During this period, agues and dysenteries were the prevailing diseases among the early settlers, many of whom to avoid the malaria of the flats and the river banks took refuge upon the higher lands to the south and east of the city. Cinchona bark was bulky and expensive, quinine yet undiscovered, and the malarious sufferers made shift with decoctions of dogwood bark, chattered their teeth and hung on grimly, until the vitality of the plasmodium or the patient yielded in the struggle.

The arrival of Dr David Long in 1810, and his permanent location in Cleveland, marked, therefore, a real epoch in the early

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medical history of our city. Born in the town of Hebron, Washington County, New York, just upon the border of Vermont, on September 29, 1787, Dr Long is said to have acquired his medical education in New York City. A good physician and surgeon, he was likewise a man of unusual intelligence, energy and public spirit, and the influence which he soon acquired was always exerted in the promotion of the physical and moral advancement of the community. How fully his many good qualities of head and heart were understood and appreciated by his fellow citizens is demonstrated by the facts that in 1815 he was elected one of the trustees of the newly chartered village of Cleveland; that in 1826 he was chosen the county commissioner for Cuyahoga County, and by his vote secured the erection of a new court house in Cleveland, instead of Newburg (then an important rival of our village); and that in 1829 he was elected president of the village corporation. Dr Long was also one of the incorporators in 1816 of the Commercial Bank of Lake Erie, the pioneer bank of Cleveland, and was similarly interested in the Cleveland Pier Co. of the same period. Though a Presbyterian by conviction, he assisted, in 1816, in the organization of the parish of Trinity Church (now Trinity Cathedral), the earliest religious organization established in the city, and in 1844 he became one of the elders of the Second Presbyterian Church. The presidency of the Cleveland Anti-Slavery Society, in 1837, bears witness also to the humanitarian instincts of this indefatigable citizen, who died, generally lamented, September 1, 1851.

The story of the execution upon the Public Square in 1812 of the Indian O'Mic or Puccon (according to Dr Dudley P. Allen) is given, with more or less detail, in all our histories of Cleveland, and will therefore be only briefly outlined here.

Puccon, a young Indian of unsavory reputation, was arrested as *particeps criminis* in the murder of two white trappers near Sandusky. The crime was committed April 3, 1812, and with a commendable promptness, which puts to shame the delays of modern justice, the culprit was tried and convicted in the same month, and condemned to be hanged in the following June. The execution naturally attracted the neighboring residents of the Western Reserve, who collected in considerable numbers on the Public Square, where the gallows was erected. The Indian, for some reason, seems to have lacked the stern stoicism characteristic of his race, and when the moment of execution arrived displayed so much nervousness that the kind-hearted, but rough officials,

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with a rude sympathy (equally unreasoning with much of the more refined humanitarianism of our own day), administered half a pint of whiskey to "steady his nerves." As the result was not entirely satisfactory, the dose was repeated, and the unfortunate Indian was launched into the "spirit world" in a condition supposed to fit him admirably for his new environment. A sudden and severe storm of rain dispersed the spectators in haste, and the officials hurriedly removed the body from the gallows and buried it in a grave near at hand. During the following night, Dr Long, with the aid of some of the visiting physicians, exhumed the body and deposited it below the bluff upon the lake shore, where, in the course of a year or two, it was thoroughly dissected by the elements. The bones were then collected and articulated, and the skeleton was preserved in the office* of Dr Long for a number of years. Later it fell into the hands of Dr Town, of Hudson, and his son-in-law, Dr Murray, after which its history is no longer traceable.

An early contemporary of Dr Long, though entirely opposite in character, was Dr Donald McIntosh, a Scotchman, said to have been educated in Quebec, who arrived in Cleveland in 1814. He lived on the corner of Water and St. Clair Streets, where he also kept a hotel called the Navey House. Of his medical career we find no record, but he is said to have been a good violinist and a *bon vivant,* devoted to horses, dogs and usquebaugh, who in 1834 ended a merry life by breaking his neck in a horse race on the Buffalo Road, now Euclid Avenue.

Mention is also made of a Dr Isaac Town, who came to Cleveland about the same period, but, after a brief sojourn, removed to Hudson.

The War of 1812, while it exposed the infant settlement to some of the dangers of a frontier town, brought with it also certain advantages appertaining to the location of a military depot for troops and munitions of war. Several companies of militia made their rendezvous upon the banks of the Cuyahoga River, and in May, 1813, Capt. Stanton Sholes, U. S. A., arrived in Cleveland with a company of regular troops, and erected here the first hospital organized in the city. Of this hospital Capt. Sholes writes as follows:

*It is interesting to note that the first office of Dr Long was located in a small frame building situated on the present site of the American House. This little building contained also the postoffice and the office of Cleveland's first practising lawyer, Alfred Kelly, and thus represented in itself the authority of the government, the dignity of the law, and the humanity of medicine. The postmaster was John Walworth, whose daughter, Julianna, Dr Long married April 6, 1811. The population of Cleveland at this period was about 60 souls.

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"At my arrival I found a number of sick and wounded, who were of Hull's surrender, sent here from Detroit, and more coming. They were crowded into a log-cabin, and no one to care for them. I sent one or two of my soldiers to take care of them, as they had no friends. I had two or three good carpenters in my company, and set them to work to build a hospital. I very soon got up a good one, thirty by twenty feet, smoothly and tightly covered and floored with chestnut bark, with two tiers of bunks around the walls, with doors and windows, and not a nail or screw, or iron latch or hinge about the building. Its cost to the Government was a few extra rations. In a short time I had all the bunks well strawed, and the sick and wounded good and clean, to their great joy and comfort, but some had fallen asleep."

The precise position of this hospital is not indicated by Capt. Sholes. The fort, which was also erected by him, was situated upon the west side of Seneca Street, about half way between Lake Street and the bank of Lake Erie, but it is probable that the hospital was built in a more protected position.

The next ten years of the history of Cleveland present no features of medical interest.* The inauguration of the Ohio Canal in 1825, designed to connect the waters of Lake Erie with the Ohio River, was the harbinger of future greatness, and its completion in 1832 opened the way for the commercial supremacy of our city.

It is interesting to note the fact that Dr Long was one of the contractors for the excavation of the canal, though, I believe, his contract proved anything but remunerative.

A severe epidemic of typhoid fever which ravaged the city in 1827 was ascribed by the physicians to the effects of malaria, occasioned by the disturbance of the soil in this process of excavation of the canal. A mortality of seventeen in a population less than one thousand, and in a period of less than two months, indicates a severe type of disease, and justified the depression of spirits ascribed to our citizens by a writer of that day. He says:

"A terrible depression of spirits and stagnation of business ensued. The whole corporation could have been bought for what one lot would now cost on Superior Street. For two months I gave up all business; went from house to house to look after the sick and their uncared-for business. People were generally discouraged and anxious to leave."

The advent of the Asiatic cholera in 1832 occasioned still more terror and mental depression. This Oriental scourge, heralded by exaggerated reports of its horrors, reached Quebec on an emigrant vessel, June 8, 1832. Promptly on June 24 of

*The *Cleveland Gazette and Commercial Register* of 1818 and 1819 contains the professional card of Dr Isaac Town (already mentioned); the *Cleveland Herald* of 1825, that of Dr Spencer Wood, and the *Herald* of 1826, the cards of Drs Richard Angell and Lewis F. W. Andrews. In 1825 Dr Long was president of the Medical Society of the 19th Medical District (Cuyahoga and Medina counties) of Ohio, and a meeting of this society was called at the house of Dr Donald McIntosh, in Cleveland, on the last Tuesday in October, at 10 a. m. The known character of the times, the place and the vivacious host, suggests the probability of a highly enjoyable program on this occasion.

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the same year the president of the village of Cleveland called a meeting of the trustees, Dr David Long, T. P. May and Sheldon Pease, to devise plans for the protection of the citizens from the dangers of the expected epidemic. A Board of Health was appointed and empowered to inspect all vessels arriving from an infected port, to examine all suspicious cases of disease, to superintend the removal from the village of all nuisances, and to procure a suitable building for the isolation and treatment of all persons suffering from the Asiatic cholera.

The constitution of this Board is worthy of notice in these modern days, when the presence of physicians upon Boards of Health is regarded with so much jealousy and suspicion. It consisted of three physicians, Drs E. W. Cowles, Joshua Mills and Oran St. John, and two laymen, Messrs Silas Belden and Ch. Denison. To these were subsequently added Dr S. J. Weldon and Mr Daniel Worley. The cholera hospital on this occasion seems to have been located upon Whiskey Island, the tongue of low land intervening between the old river bed and the lake.

John W. Allen, the president of the village at this period, has left us an account of the epidemic in Cleveland sufficiently interesting to justify its quotation in full. He says:

"The famous Black Hawk War was then raging in the territory which is now called Wisconsin, and in adjacent parts of Illinois, clear through to the Mississippi River. The Indians were all on the war-path. The garrison at what is now Chicago had been massacred, and every white man, woman and child they could hunt out had been murdered. With a horrible pestilence threatened in the East and at home too, and a war of extermination in progress in the West, it may well be inferred the popular mind was in a high state of excitement. About June, General Scott was ordered to gather all the troops he could find in the eastern forts at Buffalo, and start them off in a steamboat, in all haste, for Chicago. He embarked with a full load on board the "Henry Clay," Captain Norton commanding, a most discreet and competent man and officer. Incipient indications of cholera soon appeared, and some died, and by the time the boat arrived at Fort Gratiot, at the foot of Lake Huron, it became apparent that the effort to reach Chicago by water would prove abortive. General Scott therefore landed his men, and prepared to make the march through the wilderness, three hundred miles or more, to Chicago, and sent the "Clay" back to Buffalo. Captain Norton started down the river, having on board a number of sick soldiers. All were worn out with labor and anxiety. They hoped, at Detroit, to get food, medicines and small stores, but when they got there every dock was covered with armed men and cannon, and they were ordered to move on without a moment's delay, even in the middle of the river, and did so, heading for Buffalo. Before the "Clay" got off Cleveland, half a dozen men had died and were thrown overboard, and others were sick. All believed there would not be men enough left to work the vessel into Buffalo, and Captain Norton steamed for Cleveland, as his only alternative. Early in the morning of the tenth of June, we found the "Clay" lying fast to the west bank of the river, with a flag of distress flying, and we knew the hour of trial had come upon us thus unheralded. The trustees met immediately, and it was determined at once that everything should be done to aid the sufferers,

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and protect our citizens, so far as in us lay. I was deputed to visit Captain Norton and find what he most needed, and how it could be done. A short conversation was held with him across the river, and plans suggested for relieving them. The result was that the men were removed to comfortable barracks on the West Side, and needed appliances and physicians were furnished. Captain Norton came ashore and went into retirement with a friend for a day of two, and the "Clay" was thoroughly fumigated, and in three or four days she left for Buffalo. Some of the men having died, they were buried on a bluff point on the West Side. But, in the interim, the disease showed itself among our citizens in various localities, among those who had not been exposed at all from proximity to the boat, or to those of us who had been most connected with the work that had been done. The faces of men were blanched, and they spoke with bated breath, and all got away from here who could. How many persons were attacked is unknown now, but in the course of a fortnight the disease became less virulent and ended within a month, about fifty having died. About the middle of October following, a cold rainstorm occurred, and weeks, perhaps months, after the last case had ceased of the previous visitation, fourteen men were seized with cholera, and all died within three days. No explanation could be given as to the origin, no others being affected, and that was the last appearance of it for two years. In 1834 we had another visitation, and some deaths occurred, but the people were not so much scared."

The rôle of hero of this occasion is assigned by tradition to Dr Edwin W. Cowles, who is said to have accompanied the "Henry Clay" and its surviving passengers and crew to Detroit (Buffalo?), and to have returned in a few days in safety, greatly to the astonishment of his friends, who looked upon the Doctor as elected to certain death.

Dr Cowles was born in Bristol, Conn., in 1794, and came with his father to Austinburg, Ohio, in 1811. Here he studied medicine with Dr O. K. Hawley, and subsequently settled in Mantua. He came to Cleveland in 1832, removed to Detroit in 1834, but returned to Cleveland in 1838, and is said to have died in this city. He is also said in 1845 to have embraced the homeopathic heresy, which made its *début* in Cleveland about that period.

Dr Joshua Mills, another member of this early Board of Health, came to Cleveland in 1831, and speedily became one of the most valued citizens of the growing village. A highly esteemed physician, he also had a drug store on Superior Street, was one of our first aldermen in 1836, president of the city council in 1837, and mayor of the city for two successive terms in 1838 and 1839. He died April 29, 1843, and his loss was formally lamented by resolutions of the city council and of his medical colleagues.

A peculiar feature of the medical practice of these early days is the frequency with which physicians took part in other departments of business activity, public or private, without the slightest

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derogation from their character and professional reputation. Thus, Dr Long had a dry-goods store on the present site of the American House, and held public office for many years as a trustee or president of the village of Cleveland. Dr McIntosh, as we have seen, kept a hotel, and Dr Seth Smith Handerson, who settled in Newburg in 1826 and died in Euclid in 1844, not only (in conjunction with Noah Graves) laid out the village of Chagrin Falls in 1833, but held the office of sheriff of Cuyahoga County in 1837, in which capacity he distinguished himself in the conduct of the famous "Bridge War" with Ohio City. A more ludicrously incongruous association of duties is recorded in 1832, when the trustees of the village gravely appointed Dr David Long and Mr O. B. Skinner a committee to purchase "a hearse, harness and bier" for the public use of the community!

A doctor in those days was not merely a professional medical adviser, but likewise a good citizen, expected to bear his equal share in the public burdens of the community in which he lived.

On March 5, 1836, by act of the Legislature of Ohio, Cleveland was incorporated a city, and entered upon that career of success which has proved so gratifying to her citizens of the present day.

In the following year the first Directory of the city was published, and furnishes much interesting information to the curious investigator of these early days. The city at this period contained twenty-seven regular physicians, the roll of whose names will, doubtless, prove of interest to their colleagues of the twentieth century. They were:

Ackley, James L.
Barrows, Ashel
Bradley, F. S.
Brayton, C. D.
Brown, Asa B.
Clark, W. A.
Congar, Horace
Cushing, Erastus, (1802-1893)
Foote, Jonathan
Gay, Steven B.
Hewitt, Morgan L.
Hicks, Robert
Inglehart, Smith
Johnstone, Robert
Kellogg, Burr
Long, David
McCosk, Charles
Mathivet, Pierre
Mendenhall, George
Mills, Joshua
Moore, T. M.
Otis, W. F.
St. John, Oran
Swain, John
Terry, Charles A.
Underhill, Samuel
Walrath, Joseph

Besides these we find:

Bond, Wm. H. — Classified as a "botanic physician."

Brag, William — "Indian doctor," but whether a specialist in herbs or venereal disease is not stated. Attention may be called to the appropriateness of his name.

Smith, A. D. — "Professor of phrenology."

As the population of the city in 1837 could not have much exceeded 5,000, it is manifest that the inhabitants suffered from no lack of medical advisers. The same proportion at the present day would yield us a medical faculty of 2,500 physicians!

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In Ohio City were located only four physicians, to-wit:

Hill, Christopher E.	Pearson, Amos
Huntington, W. T.	Sheldon, Benjamin*

The druggists of the city were:

Cushing & Clark	46 Superior Street
Handerson & Punderson	73 Superior Street
B. S. Lyman	6 Water Street
Colin S. McKenzie	100 Superior Street
Stickland & Gaylord	30 Superior Street

All of these kept in stock not only drugs, but many groceries and other commodities, such as tea, coffee, sugar, tobacco, paints, oils, dye-stuffs, etc., though the fancy goods, which load the counters of our drug stores of the present day, did not creep in until about the middle of the century.

To what class of citizens should be assigned the following representative, I can only leave it to my readers to decide:

"Wallach, Charles S., Ambassador Extraordinary and Minister Plenipotentiary to his Satanic Majesty! 5 Superior St., r. 37 Water St."

Probably the trying experience of the recent epidemic of cholera had suggested to the city officials the necessity for hospital accommodations, and we, accordingly, read:

"The CITY HOSPITAL is situated upon Clinton Street, in the easterly part of the city, and upon the most elevated ground in it. The grounds connected with the hospital are about four acres, and consist of part of the land purchased at the public expense and occupied as a public cemetery. The hospital buildings, at present, consist of one structure, about seventy by thirty feet, and two stories high, fronting easterly. Its internal organization is well suited for the accommodation of its inmates, and its apartments kept in a manner creditable to the city.

"The hospital is under the control of the Board of Health—consisting of the Mayor and three members of the City Council, chosen from that body annually. The officers of the hospital, appointed by the Board of Health, are a Superintendent, a Hospital Physician and a Hospital Warden, each of whom have a fixed salary. The expenses of the institution are paid from the current revenues of the city, and for the present year are estimated at from four to five thousand dollars."

The Clinton Street of that day was the later Brownell Street (now 14th St., S. E.), and the hospital was located upon the rear of the Erie Street Cemetery, which had been purchased by the village of Cleveland in 1826. Clinton Street was then the eastern boundary of the city. It is manifest from this notice that the city enjoyed also at this time a regular Board of Health.

The placid current of medical activity in our youthful city was stirred into unwonted energy in 1839 by the meeting in Cleveland of the Ohio State Medical Convention, under the presidency of Dr S. P. Hildreth, of Marietta. Most of the physicians of the city were present at the meetings and became members of

*Mayor of Ohio City, 1850-52.

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the Convention, and Dr Jared P. Kirtland, then a representative of Trumbull County, but subsequently a distinguished teacher and physician of Cleveland, was elected President of the Convention for the ensuing year. Dr George Mendenhall, a rising young physician of Cleveland, was chosen Recording Secretary. Much was contributed to the success of the occasion by the admirable address of the retiring President, Dr Hildreth, on the climatology and epidemiology of Southern Ohio.

The influence of this meeting of the Convention upon the physicians, and even the laity, of Cleveland deserves special emphasis. It broadened the horizon of their thoughts, replaced their previous isolation by a feeling of sympathy and kinship with other towns and cities of the State, and awakened a zeal and emulation in the pursuit of science, which brought forth abundant fruit in the near future. In this way, doubtless, it contributed not a little to the next step in the medical progress of our city—the organization of the Cleveland Medical College, the Medical Department of Western Reserve University.

Six medical colleges had been organized in Ohio prior to the year 1843, to-wit:

The Medical College of Ohio, organized at Cincinnati, in 1819.

The Medical Department of Ohio University (Eclectic), Worthington, Ohio, organized 1832.

The Cincinnati Medical College, Cincinnati, organized 1834.

The Medical Department of Willoughby University, Willoughby, Ohio, organized 1835.

The American Medical College (Eclectic), Cincinnati, Ohio, organized in 1839.

The Botanico-Medical College of Ohio, Cincinnati, organized 1840.

Of these, The Medical Department of Willoughby University, so intimately connected with the origin of the Cleveland Medical College, deserves a word of notice.

The little town of Willoughby in these early days, with a population of perhaps 1,500 inhabitants, was distinguished for the intelligence and energy of its citizens, and enjoyed the unusual advantages of a circulating library, a lyceum and a debating society, in which historical, political, literary and scientific questions were discussed with zeal and ability. Very naturally there soon developed a desire for even better facilities for education, and in 1834 it was proposed to organize an institution, to be known as "The Willoughby University of Lake Erie," to include all the educational departments of a complete university. This ambitious plan advanced so far as the election of the officers

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of the university and the organization of a medical department, with the following faculty: .

Horace A. Ackley, M. D.	Professor of Anatomy
Amasa Trowbridge, M. D.	Profesor of Surgery
Daniel L. M. Peixotto, M. D. . . .	Professor of Theory and Practice
John Lang Cassels, M. D.	Professor of Chemistry
William M. Smith, M. D.	Professor of Materia Medica

The other departments of the proposed university seem never to have materialized, but the medical college in 1835-6 contained twenty-three students, and conferred the degree of M. D. upon five young men. A hard struggle for success followed, complicated by dissensions among the trustees and faculty, and in 1843 it became evident that a change of location was absolutely necessary to preserve the organization. Drs John Delamater, Jared P. Kirtland and J. Lang Cassels, at that time members of the medical faculty, advocated the removal of the college to Cleveland. The remainder of the faculty favored Columbus. Happily, at this time, certain prominent citizens of Cleveland invited the faculty of the Willoughby Medical College to locate the institution in this city, promising to give land for the purpose and financial aid in the building of a college building. Drs Delamater, Kirtland and Cassels at once resigned their chairs in the Willoughby institution, came to Cleveland and organized the Cleveland Medical College. In order to avoid the delay of waiting for a charter, the new college was organized as the Medical Department of the Western Reserve College, a prosperous institution founded in Hudson, Ohio, in 1826. The remaining professors of the Willoughby college, after a short struggle to maintain their organization, removed to Columbus, and the college was merged into the Starling Medical College, founded in 1847.

The earliest sessions of the Cleveland Medical College were held in the Farmers' Block, corner of Prospect and Ontario Streets, but the original college building of the college was completed, on the corner of Erie and St. Clair Streets, in 1844, and the first class was graduated by this institution in the same year.

The original faculty of the Cleveland Medical College was constituted as follows:

John Delamater, M.D. (1787-1867) .	Prof. of Midwifery and Diseases of Women and Children.
Jared P. Kirtland, M.D. (1793-1877) .	Prof. of the Theory and Practice of Medicine.
Horace A. Ackley, M.D. (1815-1859) .	Professor of Surgery.

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John Lang Cassels, M.D. (1808-1879)	Professor of Materia Medica.
Noah Worcester, M. D., (1812-1847)	Prof. of Physical Diagnosis and Diseases of the Skin.
Samuel St. John, M.D. (1813-1876)	Professor of Chemistry.
Jacob J. Delamater, M. D.	Lecturer on Physiology.

Personal biography is not within the scope of this paper, but of this medical faculty, as a whole, it may be fairly said that it was the best balanced faculty west of the Alleghanies, and in many respects rivalled those of the more famous medical institutions of the older and larger cities of the eastern coast. In the absence of the facilities furnished by large and well-appointed hospitals, clinical teaching in the Cleveland Medical College was, of course, defective, but this deficiency was supplemented by the use of dispensary and private work on the part of the teachers, until proper hospital advantages were, in due time, developed and utilized.

The old college building served the purposes of the institution until 1887, when, through the munificence of Mr John L. Woods, a new and elaborate building, supplying abundant room and all modern facilities for medical instruction, was placed at the disposal of the faculty and has since been materially enlarged and improved.

The Cleveland Academy of Natural Science, organized November 24, 1845, under the auspices and presidency of Dr Jared P. Kirtland, deserves mention in this connection also. Though in no respect devoted to the cultivation of medical subjects, many of our physicians were members of this academy and contributed not a little to its reputation as a scientific body. Dr Kirtland was the first naturalist to discover and demonstrate the sexual character of the naiads, and Dr Theodatus Garlick (1805-1884), a partner of Dr Ackley, was the earliest scientist in the United States to practise the artificial propagation of fish.

The organization in 1846 of the Ohio State Medical Society, which, in 1851, absorbed the preceding Ohio Medical Convention, and became thenceforward its lineal successor, served still further to promote the solidarity of medical interests in the State, and to stimulate the mutual association of its widely scattered physicians. Cleveland medical men have always been prominent in the councils of the State Medical Society and upon the roster of its presidents we find the following honored names of former or present colleagues:

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Jared P. Kirtland, 1848-9.	Henry J. Herrick (1833-1901), 1874-5.
Horace A. Ackley, 1852-3.	W. J. Scott (1822-1896), 1877-8.
Leander Firestone (1819-1888), 1859-60.	Dudley P. Allen, 1892-3.
Gustav C. E. Weber, 1864-5.	W. H. Humiston, 1897-8.

The Ohio State Medical Society also held its annual meeting in Cleveland in the years 1852, 1870, 1880, 1883, 1897 and 1904.

The return of the epidemic cholera just at the close of the first half of the century served once more to arouse the interest of the community in the science of preventive medicine, and it was in 1849 that Dr Ackley set a glorious example of professional zeal, humanity and self-sacrifice by temporarily abandoning his own weighty duties in Cleveland, and, with a corps of physicians organized by himself, hastening to the aid of our sister city, Sandusky, then almost decimated by the Asiatic scourge. The cholera reappeared once again in 1854, but in neither of these last visitations was our city seriously ravaged, and the disease has never since appeared in Cleveland.

By a curious coincidence, the last decennium of the first half of the nineteenth century, which had witnessed in Cleveland a notable expansion of medical interests, and the foundation of an institution specially designed to promote the progress of scientific medicine, witnessed likewise the appearance of the Hahnemannian heresy, which has played no insignificant rôle in the history of local medicine.

The earliest representatives of homeopathy in Cleveland are said to have been Dr R. E. W. Adams, his partner Dr Daniel O. Hoyt, and Dr John Wheeler. The latter physician was a graduate of Dartmouth College in 1817, came to Cleveland in 1845 and died in this city in 1876.

The supposedly new medical doctrine was readily accepted by a large following, and by the year 1850 the cult acquired sufficient strength in the city to feel warranted in erecting an institution for the extension of its medical tenets to a still wider circle.

Accordingly, in that year, the Western College of Homeopathy was organized with the following faculty:

Edwin C. Wetherell, M. D. (d. 1858) . .	Professor of Anatomy.
Lansing Briggs, M. D.	Professor of Surgery.
Chas. D. Williams, M. D. (d. 1882) . .	Prof. of Institutes of Homeopathic Medicine.
Alfred H. Burritt, M. D., ...	Professor of Gynecology and Obstetrics.
Lewis Dodge, M. D.	Professor of Materia Medica.
Hamilton H. Smith, M. D.	Professor of Chemistry.
Jehu Brainard, A.M., M.D.,(d.1878) . .	Professor of Physical Science.

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Before the first course of lectures in the new institution commenced, Dr Burritt resigned and was replaced by Dr Storm Rosa, and the chair of surgery was occupied by Dr Arthur E. Bissell (d. 1896), *vice* Dr Briggs, who also tendered his resignation.

The lectures were held in a building on the southeast corner of Ontario and Prospect Streets, and the first class of twelve was graduated from this institution in 1851.

In February, 1852, a mob of the lower and ignorant classes of the city, inflamed by the report that one of our citizens had discovered in the dissecting room of the college the mutilated remains of his daughter, who had recently died, gutted the college building, and the disturbance was not entirely quelled until the militia were summoned and dispersed the mob by force of arms.

With commendable energy the faculty at once purchased a large building, known as "The Belvidere," on Ohio Street (near the Haymarket), remodeled it to suit the purposes of the institution and succeeded in resuming the regular work of the college at the close of the same year. This building continued the home of the college for sixteen years. In 1857, however, the name of the organization was changed to that of "The Western Homeopathic College."

In 1868 the college purchased the "Humiston Institute," located on "The Heights," together with its philosophical and chemical apparatus, library and museum, and converted it into a college building with a hospital of fifty beds. In 1870 the title of the institution was once more changed to "The Homeopathic Hospital College."

In 1873 the college was once again removed to Prospect Street, corner of Oak Place, where it remained until the completion, in 1892, of its present commodious building on Huron Road. On the occupation of this latter building, the title was again changed to "The Cleveland University of Medicine and Surgery."

Dissensions in the faculty led, in 1890, to the organization of an independent homeopathic college, called "The Cleveland Medical College," which located temporarily in a rented building at No. 93 Prospect Street, but in 1892 removed to a new college building of its own on Bolivar Street. In 1897, however, the breach between the schools was healed, and they were combined into a single institution under the latest of its kaleidoscopic

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titles, "The Cleveland Homeopathic Medical College" of the present time.

In 1868, as the result of a resolution of the faculty of the Western Homeopathic College to suspend the further granting of the degree of M. D. to women, a medical institution known as "The Homeopathic College for Women" was organized and chartered, under the presidency of Dr Myra K. Merrick. So far as I know, no degrees were ever granted by this college, and in 1870 it was merged again into the Homeopathic Hospital College, its evolution and devolution having consumed a period of less than three years.*

[TO BE CONTINUED]

Recollections of the Early Days of Cleveland Medical College

By J. C. REEVE, M. D., LL. D. [W. R. U.], Dayton, Ohio.

My recollections of the Cleveland Medical College begin at its beginning. I remember very well when the faculty of the Willoughby Medical School resigned in a body and transferred the institution to Cleveland. The alleged motive for the change was that a village was no place for a medical school; yet there had been many schools of note previous to that time in villages. One, I think, of more than usual repute, was at Geneva, N. Y. For a year or two after the transfer of the college to Cleveland there was a vigorous fight made by the Willoughby School to attract students from the city. A four-mule team paraded the streets and students were carried gratis to the village where every attention was paid them. My decision in favor of medicine as a profession was due to the excitement of that rivalry.

The college in Cleveland occupied first the upper stories of the block on the southeast corner of Prospect and Ontario Streets. My first acquaintance with it began there and is connected with a notable event in the history of medicine. Interested as I naturally was in everything connected with the profession I was looking forward to joining, I used to slip in on operating days and there I saw the first administration of an anesthetic for a surgical operation ever made in Northern Ohio. It was an

*For the facts relating to the homeopathic profession I am indebted to an excellent little pamphlet entitled "History of the Cleveland Homeopathic College from 1850 to 1880," from the pen of the venerable Dr D. R. Beckwith of Cleveland.

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amputation of the leg, and although the patient shouted and struggled, making it a difficult task for Professor Ackley, he averred later that he had not suffered. The quality of the ether was not at that time perfect. This must have been in the fall of 1846, or in the winter following.

In the early spring of 1847 I began reading medicine in the office of Prof. John Delamater and my connection with the college began by attendance on the course of lectures of the winter of 1847-8.

The institution was then one of large classes and of high reputation. The only medical schools to the west were one at Chicago and one at St. Louis; to the south one at Cincinnati; to the east none nearer than Albany and Philadelphia. This gave it a wide territory from which to draw students. Its reputation depended principally upon three men: St. John, Prof. of Chemistry; Ackley, Prof. of Surgery, and John Delamater, Prof. of Obstetrics and Diseases of Women. The name of J. P. Kirtland, Prof. of Practice of Medicine, doubtless added strength—he was widely known as a scientist, especially as a horticulturist and a naturalist. Prof. St. John was a cultured, scholarly and traveled gentleman. His lectures, I well remember, were sometimes above our heads. Prof. Ackley was a bold and skilful operator, a clear and impressive teacher, a man of marked and commanding personality. Prof. John Delamater had filled chairs in several Eastern schools and had gained a high reputation as a teacher, which he justly deserved. He was clear, methodical and thorough; as a man he was dignified, intellectual and devout. To the influence of my association with him I attribute much of whatever of good there may have been in my life, both in the profession and as a citizen. I emphasize the standing and the acquirements of these men to show that the faults and the shortcomings of the school, which must be recorded, were not their fault, but the result of the system of education then in vogue and of the conditions surrounding them. These three men were good and strong men. In view of the times in which they lived they were eminent men and well qualified for their positions.

No examination as to qualifications for professional study was demanded when I entered the college. I had finished the Latin reader when I left school, but had had only a few terms of instruction in the common schools and one term at an academy after I was 12 years of age. I had fitted myself for teaching, which was not a herculean task in those days, and had

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taught a country school two winters. I had made something of a beginning in German. So far as I can remember I was better prepared for the study of medicine than a large majority of students of the time.

The teaching at the college was in accordance with the system then in vogue. It was by lectures, lectures, lectures—six wearisome hours daily. The system was radically wrong. Once, perhaps twice weekly, there was an attempt at a surgical clinic; but witnessing operations for hare-lip and cataract from the seats of the amphitheater was not very instructive. In the course on materia medica, specimens of drugs were shown and representations of plants. I remember no instruction in pharmacy. I learned what I know of that, and useful knowledge it was, by compounding medicines in Dr Delamater's office. It was but rarely then that prescriptions were sent to drug stores. I do not remember any lectures on therapeutics. I can recall my embarrassment, when beginning practise, as to choosing a cathartic; I had never been instructed, for instance, in the conditions demanding rather one of the salines than aloes or rhubarb. In chemistry some experiments were made before the class, but they were of a character which I think were not above those of a present day high-school course. There was no laboratory instruction. I was not taught even to make the simple test for albumen. Indeed, the condition of the renal secretion did not then come into the consideration of a case. Bright had, it is true, shown, as early as 1828, the dependence of some dropsies on diseased kidneys, but information did not travel in those days as now and it was only in 1847, while I was on the benches, that Lever discovered the relation of albumen in the urine to puerperal convulsions. In surgery I had no instruction in bandaging, none personally in the putting up of fractures. I think this section of the work was demonstrated before the class in the amphitheater. Here may be mentioned the fact, horrifying with our present knowledge, that the same (wooden) table was used in the amphitheater for surgical operations and for anatomic demonstrations! I had no personal instruction in operative surgery and had to do my first amputation in the wilds of Wisconsin, with only a pocket case, an improvised tourniquet and a sashsaw, and with but one assistant who was in such mortal dread of the effects of chloroform that he was as much a hindrance as an assistant. In practise I had no instruction in physical diagnosis; never was taken to the bedside of a patient

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and taught to make a methodical examination of the case. We had no thermometer in those days, and the pulse of the patient, and the sense of touch of the physician, were the only guides to fever. When I went, in the fall of 1853, to London, the very first question asked me in the hospital I attended was: "What are you doing with the microscope out your way?" I had never seen a microscope! Such an one as is used for clinical work! In obstetrics I was sent out with most meagre information as to instrumental work, and less as to the conditions in which to resort to it. This was less the fault of the teacher and the school than the doctrines of the times. It was taught then, that the forceps was only to be resorted to when the *life of the mother was in danger;* the child was not considered, much less relief of the suffering of the patient. I can speak feelingly upon this point, for my first-born, a son, was lost solely from prolonged labor. A most surprising fact, and one that most strikingly marks the state of education at that time, is that I never had pointed out to me the changes which take place in the breasts during pregnancy! I do not know what efforts were made but I do not suppose that there was then in Cleveland a foreign element to furnish even this amount of clinical instruction.

I attended two full courses of lectures, the necessary requisite for graduation, but instead of graduating I went into practise, a course then quite common. I returned for graduation in the summer, I think, of 1852. I have therefore no class affiliation with the alumni. There was no faculty meeting for my examination, my preceptor, Dr John Delamater, alone conducted it and upon that I received my diploma.

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The Modern Treatment of Tuberculosis of the Spine

By ROBERT W. LOVETT, M. D., Boston, Mass.

In 1779 Percival Pott, Surgeon to St. Bartholomew's Hospital of London, then at the height of his well deserved fame, published an essay "On That Kind of Palsy of the Lower Limbs which is Frequently Found to Accompany a Curvature of the Spine and is Supposed to be Caused by it, Together with its Method of Cure." In a second essay, following this in 1783 on the same subject, a more extensive consideration of the same condition was given, in which the cause of the spinal deformity was definitely attributed to a carious condition of certain vertebræ. To Percival Pott, therefore, has been credited the recognition of a condition named after him as "Pott's disease," which name is only now being supplanted by the more rational one of "tuberculosis of the spine."

There is a curious fact connected with these essays of Pott's which I have not seen alluded to and which bears on our present discussion. It was called to his attention that Hippocrates had described the cure of a paralysis of the lower limbs by an abscess in the back or loins and Pott forthwith proceeded to treat all cases of this affection coming under his care by means of setons and issues at the site of the deformity. Although before he began this treatment his prognosis in such cases was of the gloomiest sort, he says of this treatment, "That, so far as my experience goes, I have not the least doubt that if the means proposed be made use of before the bones are become really carious and rotten they will always be successful." We know that paralysis is not as a rule an early symptom in spinal tuberculosis, so that Pott was not speaking of early cases, and we also know that he was an accurate and able observer. How, then, is one to account for the improvement in cases treated by setons and issues which apparently occurred?

I find an interesting answer in comments on Pott's essay made by Sir James Earle, the editor of his Surgery, published in 1819, who states, "In many cases of the curved spines which Mr. Pott attended, he thought it necessary to confine his patients to bed

Read before the Academy of Medicine of Cleveland, December 18, 1908

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or to a horizontal situation during the greatest part of the cure as they could not bear to remain in an upright position." It is not unfair, I think, to attribute the success of Pott's treatment to the necessitated use of the recumbent position. It is interesting to note that after something more than a century we are turning again to treatment by recumbency, stumbled on and found efficacious by the London surgeon who first identified the disease.

The subject of spinal tuberculosis and its treatment has thus been studied for over a hundred years. The pathology and etiology of the affection are well formulated, the therapeutic indications are clearly written in the pathology and many efficient methods of treatment have been formulated. In the present paper, therefore, I shall not advocate any new method of treatment, believing that among those in use can be found all that are needed, but I shall rather ask your attention to a careful consideration of the essentials of the mechanical problem to be met and to the relative values of existing methods of meeting it, dwelling rather on principles than on details. I would particularly call your attention to the need of the application here of those principles of general surgery which are recognized as effective in other conditions which run more or less parallel to this. If surgeons treated fractures of the leg with no more recognition of these principles than is the case in a great deal of the treatment of spinal tuberculosis, there would be very many crooked legs in the community. What surgeon would treat a fractured leg with a splint or bandage running no higher than the fracture, allowing the patient to walk about on the plaster as soon as it could be done without excessive pain? Yet, many a case of spinal tuberculosis is being treated in a way exactly analogous to this by a jacket or brace not effective above the site of the disease. What wonder that under these conditions we regard the deformity of spinal tuberculosis as bound to increase under treatment.

I shall, therefore, call your attention to the methods of treatment with which we are all more or less familiar and for the use of those which I advocate I am prepared to give reasons, the value of which you can estimate for yourselves on general principles, for I assume that I am not addressing an audience of specialists. These conclusions rest in a large measure on the analysis of 1792 cases of Pott's disease from the records of the Children's Hospital, Boston.

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The final outcome in every case of spinal tuberculosis depends upon the result of a contest going on in the individual between the destructive tuberculous process and the reparative power of the individual. If the former prevails the patient dies, if the latter, he recovers. Before, then, considering what kind of local treatment we should adopt in these cases it is desirable to consider in what way, if any, we may stimulate the process of repair in the affected individual.

It is a matter of common information that those persons who lead an outdoor life are in general healthier than those living indoors, but only of very recent years has it been recognized that a life wholly out of doors in the case of tuberculous children is of the very greatest value in raising the general standard of health and of increasing the resistance of the individual. At Berck-sur-mer, a small watering place on the coast of France near Calais, may be seen a town of adults and children, affected with tuberculosis of the joints, who live in the open air, the number of patients in summer reaching some 6000. It is notable not only for this, but also for the fact that here apparently the outdoor treatment of such cases began 50 years ago and Berck has therefore served as a pioneer and deserves recognition and due credit.

In former years patients with spinal tuberculosis were occasionally sent South with instructions to be out of doors as much as possible. We have now learned that we may keep such patients out of doors day and night, winter and summer, in a climate as severe as Massachusetts, not only without risk but with very great benefit.[1]

Since December, 1904, the patients with spinal tuberculosis and other forms of tuberculous joint disease at the Convalescent Home of the Children's Hospital at Wellesley Hills (14 miles from Boston) have lived in the open air, passing the day in an open play-room and the nights in open sheds, heated in the severest winter weather to about 20° F. An analysis was made from the continuous observation of 17 bad cases from the time of their transfer from the wards of the hospital to open sheds. The average gain in weight was one pound a week and an average increase in the percentage of hemoglobin occurred to the extent of 20%. The amount of food consumed by these children increased about 30% and it has been a matter of experience in these three years that the general average of progress has

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been better, that fewer intractable cases have been met, and that spinal tuberculosis has been on the whole more amenable to treatment than before.

If such results are to be obtained by out of door life in a climate like that of Boston where the winters are long and severe, with a temperature frequently falling below zero and often with continuous weeks of snow, it must be evident that in milder climates such measures are still more easily to be carried out. The importance of making outdoor life the accompaniment of whatever mechanical treatment is pursued is to my mind of primary importance and cannot be brought too strongly to the attention of the profession. I should not have insisted so strongly on this point were it not that certain recent authoritative works give the matter but slight mention. It is too soon to speak definitely as to the results from the use of tuberculin in the minute doses now being used[2] and of the other forms of serum treatment. It is quite possible that it may aid the outdoor treatment in checking the ravages of the tuberculous process. The importance of proper and nourishing food and suitable hygienic surroundings is self evident.

MECHANICAL TREATMENT

The mechanical problem is simple and definite. We are dealing with a weight-bearing column, the spine, which has softened; as a result of which the top of the column has fallen or is falling forward, crushing the softened area and making an angular projection backward at the site of the disease.

The object of treatment is obvious; namely, to secure ankylosis between the diseased bones as rapidly as possible and in the best possible position. We have as an asset in our treatment the knowledge that tuberculous bone tends to heal under favorable conditions. The conditions are made favorable by two therapeutic means which are at our disposal. (1) Fixation to prevent trauma from motion at the seat of disease. (2) The diminution or removal of superincumbent weight to prevent further crushing. Neither alone is sufficient, but both must be used and each pushed to its most efficient point.

That some fixation is required for the healing of tuberculous bone disease is a principle as well accepted as that fixation is required for the healing of fractures. That superincumbent

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weight must be removed as far as possible is self evident as the only means of diminishing harmful contact between the diseased and softened vertebral bodies. To fix the spine with the vertebræ jammed together would be simply to invite extension of the disease. Treatment carrying out these two purposes should be accomplished by means of apparatus which, other things being equal, interferes as little as possible with respiration by constricting the chest, and which makes as little harmful pressure as possible on the abdomen, for the maintenance of the best possible level of general health is of primary importance.

The methods of treatment in general use may be roughly grouped under three headings.

I. Treatment by simple recumbency.
II. Treatment by jackets and braces.
III. Treatment by jackets and braces combined with recumbency.

I. Treatment by simple recumbency.

Problem: (1) To secure fixation. (2) To remove superincumbent weight.

Solution: In the horizontal position, superincumbent weight is eliminated by gravity. Vertebral contact at the seat of disease may be further prevented by hyperextending the spine at this region by means of pads placed under the deformity, making this the point of greatest upward support. Fixation is easily secured by the simple means to be described.

Application: (A) The patient lies on the back on an oblong gas-pipe frame a little wider than the shoulders and a little longer than the body (Bradford frame)[3]. This frame is covered by two tightly stretched cloth covers which leave an open space under the pelvis so that the child need not be removed from the frame for its daily needs, but the bed pan may be placed under the opening in the frame. At the sides of the spinal deformity are placed longitudinal pads made of folded sheets or pillow cases pressing upward and hyperextending the spine at the site of the disease. A folded towel passes around the pelvis and frame to hold the lower part of the body in place and crossed straps of webbing secure the chest and shoulders to the upper part of the frame. On this frame the child may be carried out of doors and transported from place to place. Should the case

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be extremely acute, traction downward on both legs and upward on the head may be added to the treatment, contributing both to fixation and the diminution of vertebral contact.

(B) An alternative to the gas-pipe frame is offered in the plaster of Paris bed of Lorenz[4] which is useful when the nursing is not of the best, as it requires less nicety of adjustment than the padded bed frame.

The plaster shell is made by laying the patient on the face in a position of hyperextension and moulding to the back 10 or 12 sheets of crinoline gauze impregnated with plaster of Paris which cover the back of the head, the shoulders and the trunk as far as the lower part of the buttocks. When this is dry it may be trimmed along the lateral line of the body and forms practically the posterior half of a plaster jacket in which the patient lies with the spine hyperextended. (Its elaboration and modification by Wullstein[5] is obviously effective but complicated.)

The advantages of the treatment by recumbency will be discussed later in contrasting it with ambulatory methods.

Objections: The treatment by recumbency is not an easy one to carry out for several months and it is difficult to secure the coöperation of the less intelligent parents, especially when the children suffer but little pain and are able with a jacket or brace to walk about with perfect comfort. Children in bed require much more care and a certain amount of nursing which it is often impossible for the poorer classes to give and the confinement is at first irksome to the children who naturally wish to run about. But the chief objection which held in former years has been removed since we have learned that such treatment need not be carried on in the house, but can be pursued without any loss of outdoor life.

II. Ambulatory treatment. Treatment by jackets and braces.

Problems: (1) To secure fixation. (2) To remove superincumbent weight.

Solution: By means of plaster of Paris jackets[6] and braces[7] the attempt is made to use the principle of leverage to diminish vertebral contact at the seat of disease. To do this implies a forward pressure on the deformity with a backward pull from the ends of the spine high up on the thorax and low down on the pelvis. In other words, to hold the spine hyperextended by

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pulling the thorax and pelvis back against a point of resistance furnished by the deformity. In this way the center of gravity of the body is carried backward and vertebral contact diminished. Fixation is furnished to a certain degree by this splinting.

Treatment by plaster of Paris jackets: Plaster jackets are apparently superior to braces in general in the ambulatory treatment of the acute disease because they obtain a more rigid hold on the thorax than do braces for backward pull, they prevent side bending and rotation, thereby contributing to more efficient fixation, and they may be left on for many months at a time, thus allowing the quiet desirable for the establishment of ankylosis. It must be clearly recognized that they depend for efficiency upon maintaining a hyperextended position of the spine and not on pulling the thorax vertically up away from the pelvis and holding it there, as originally thought when they were first used. It is inefficient treatment to suspend the patient by the head, or head and arms, to apply a jacket in this position without any attempt to produce forward pressure by some other means at the site of deformity. In other words one must use the principle of leverage[8]. The plaster jacket is a plaster splint, it must be moulded and shaped to the patient's contours, *e. g.*, over the flanks, and a loose cylindrical tube of plaster applied in suspension is of no more use than a similar splint would be in a fractured leg.

It matters little by what particular method a jacket is applied, provided the principle of forward leverage is observed. The most efficient technic that I have ever seen is the second method of Calot as used by Calot, but in less skilled hands the method offers difficulty. The patient is suspended by the head, the jacket is applied in one sheet of crinoline impregnated by plaster which is cut in rather an elaborate pattern. This is secured by a few circular turns and the proceeding is complete. All jackets include the shoulders and neck and if the disease is high the head as well. Part of the front of the jacket is then removed opposite the deformity, a square trap-door is cut over the kyphus and a layer of absorbent cotton an inch or two in thickness is laid on the back through the trap-door. The trap-door is then pushed back into place and fastened by turns of bandage. The patient is then kept in a position of recumbency for several months. Under these circumstances one may look for improvement in the deformity and in some cases for practical obliteration of the kyphus.

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A simple method which I have personally found most useful is as follows: The patient lies face downward on a strip of cloth less wide than the body stretched tight between the ends of a heavy gas-pipe frame. This strip of cloth at the bottom of the frame is fastened to an adjustable bar so that it may be slackened or tightened. Beginning below, the jacket is applied as high as the middle of the deformity, which is heavily padded and is allowed to harden. The hammock of cloth is then slackened and the spine consequently hyperextended at the site of the deformity as the body arches down until it becomes slightly uncomfortable and the jacket is then completed, the hammock cut away above and below the jacket and pulled out from under the completed jacket. The patient then sits up, the shoulders are pulled back, and the jacket completed by incorporating the shoulders by turns of the bandage.

All jackets to be efficient must include the shoulders, and the head as well when the disease is above the mid-dorsal region. It is probable that much progress will be made in our jacket technic in the next few years. The cylindrical tube of plaster not including the shoulders applied in suspension is already discredited and is no longer seen in competent hands. We are learning to mould our jackets in over the hips and loins, and to pad them most carefully over bony prominences. At the Children's Hospital we are using light jackets which are strengthened by ridges of plaster rope and cutting away the jacket over the sides of the chest, thus working toward a skeleton jacket. But we have much to learn in our application of jackets and until we regard the deformity of tuberculosis of the spine as a matter in part, if not wholly, remediable and only efficiently treated when forward pressure exists at the site of the deformity up to the amount that the skin will tolerate, we shall not be making our full extent of progress.

Forcible correction by plaster of Paris jackets: The method of obliterating the deformity of spinal tuberculosis by force and holding the improved position by plaster of Paris jackets has been abandoned. The method which was identified with the name of Calot was not only out of accord with what we know of the pathology of bone tuberculosis but was accompanied by too large a number of accidents and the ultimate results were not sufficiently good to warrant the risk of the procedure. The method, however, served a valuable purpose in showing us that it was

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safe to use a higher degree of corrective force in our routine treatment than had formerly been employed and has left its impress on the treatment of the disease.

Treatment by braces: As supplementary or as alternative to the use of plaster of Paris jackets, braces are used to carry out the same principle of hyperextending the spine at the site of disease by means of a lever pressing forward on the region of the deformity and pulling backward on the thorax and pelvis. To carry out this mechanical principle effectively by a brace it is clear that a rigid hold must be secured on the thorax by which to pull it back and that the skin over the region of the deformity, which is the fulcrum, must be able to endure the pressure necessary for effective leverage. As a matter of fact it is impossible to secure a rigid hold on the thorax on account of the mobility of the ribs, and if it were possible the skin of the back could not endure the pressure necessary to secure an effective modification of intervertebral pressure by the use of the brace or jacket as a really effective lever. The brace cannot be regarded as effective even as the jacket in preventing intervertebral pressure in the upright position.

The Taylor back brace or anteroposterior spinal support consists of two steel uprights running the length of the spine in the line of the row of transverse processes ending above at about the level of the top of the scapulæ and below at the upper part of the pelvis. At the bottom is fastened a steel U, inverted to secure a hold on the pelvis. This brace is held in place by a cloth apron covering the front half of the body and buckled to the brace by means of transverse straps. But without some form of rigid anterior chest-piece the brace is not effective to any degree. A simple and fairly efficient addition is secured by means of a flattened steel piece running the length of the sternum terminating above in two divergent arms reaching to the infraclavicular fossæ and below in two other arms running downward and backward across the lower ribs. By means of straps at the end of each arm a fair pull is secured on the thorax by fastening the straps to the brace over the shoulders and around the chest. Such a brace can only be regarded as in any way efficient in disease at or below the middle dorsal region, above this a head piece being required. Such a head piece consists of an oval horizontal ring supporting chin and occiput connected with the brace by means of an adjustable upright post fastened to its upper part.[9]

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Comparison of recumbent and ambulatory methods: The mechanical conditions prevailing in ambulatory treatment are obviously far less favorable than in recumbency. In the horizontal position the body segment above the disease weighs nothing, so far as vertebral contact is concerned: in the erect position the upper segment, consisting of head, arms, shoulder girdle, and thorax, weighs from 20 pounds upward and this weight must be negatived before we can approach the conditions of recumbency so far as intervertebral pressure is concerned. That this weight can be negatived by leverage implies a rigid hold on the thorax and a transfer of this weight to the fulcrum (which must be borne by the skin over the seat of disease). It has been seen that this is not possible.[10] One is therefore forced to the conclusion that ambulatory apparatus must necessarily be imperfect in mechanical efficiency when compared to the conditions in recumbency.[11] There should be no hesitation in our minds as to the relative value of treatment by recumbency as contrasted with any treatment in which the patient is allowed to go about and every case of spinal tuberculosis *should* be treated during the acute stage by recumbency. On the other hand, however, we must recognize the fact that this ideal is not always possible in practice and that many, if not most of the patients in the outdoor department of a hospital in a large city, must be treated by ambulatory methods. This is necessitated by the circumstances of the parents which will not permit them to care for the children in bed for long periods and we must recognize the fact that ambulatory methods carried out for two or three years will yield better results than recumbent treatment abandoned by the parents in disgust at the end of two or three months. But in prescribing ambulatory treatment we must recognize its inadequacy and see to it that at every point the apparatus is as efficient mechanically as it can be made, and we must not delude ourselves with the idea that we have done away with all harmful vertebral contact by any ambulatory apparatus. If we must use ambulatory methods they are best borne by cervical and lumbar cases and least well by cases with disease in the dorsal region.

Plaster jackets are more efficient than braces when ambulatory treatment of the acute stage must be followed and in the convalescent stage braces are preferable to jackets.

Treatment by recumbency is necessitated in all cases when the disease becomes painful, when abscess is present or threatened,

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when psoas contraction takes place, in cases of paralysis, and when the general health fails.

With regard to complications a few words only are necessary.

Abscess we have learned to regard as a condition which is not to be touched so long as absorption is likely, and absorption is favored by efficient treatment of which recumbency is an essential part. The reason for not incising and evacuating abscesses is that their contents are nearly always sterile until opened but that they become infected two or three weeks after opening no matter how carefully they are dressed. One has then to deal with a mixed infection from that time onward. The disposition that even large abscesses have to absorb under favorable conditions is notable. Cervical and retropharyngeal abscesses connected with cervical disease will generally require incision. Mediastinal abscesses are dangerous and frequently suddenly fatal. I have seen one absorb under expectancy but I have seen more than one case die even before the abscess was clearly recognized and costo-transversectomy with evacuation is to be advised. Psoas abscess is best treated by recumbency and traction on the affected leg until it is evident that absorption will not occur. The mortality from operation in 49 cases operated upon at the Children's Hospital was 25% in cases operated on not over five years, and 50% in cases operated on between five and 10 years previously. It is not definitely settled whether it is wiser to make incisions in the iliac fossa and loin, clean out as much pyogenic membrane as can be reached and drain through and through or to make a small incision in the iliac fossa, wash out thoroughly, drain for 24 hours only, put on a jacket, and get the patient up upon the third or fourth day for drainage. My own experience with both methods, so far as it goes, favors the less severe operation because it has seemed to me that these abscesses closed more quickly. In this conclusion I am happy to be confirmed by so able a surgeon as Dollinger of Buda Pest, and with the aspiration of such abscesses I have had occasional success.

Paralysis: Early paralysis is benefited, and sometimes very greatly, by the application of a hyperextension jacket applied with more correction than is justifiable in any other condition, followed by a period of recumbency. It must be remembered that such paralysis tends very strongly toward recovery under any reasonable conditions of treatment, hence laminectomy is not to be lightly undertaken for its relief. In the severer cases it has

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proved in my hands at times a brilliant success and in others of no use.

The points that I would like to impress on you in closing, are:

(1) Spinal tuberculosis is a very much more amenable affection under efficient modern treatment than it formerly was. The death rate is far lower, abscesses and paralysis are much less frequently seen, the deformity should decrease and not increase during treatment, and the prognosis is not unfavorable.

(2) Outdoor life day and night is essential to stimulate the process of repair.

(3) Recumbency fulfills the mechanical demands by removing wholly superincumbent weight, making fixation easy, and not constricting the chest. Jackets and braces add to the efficiency of treatment by recumbency. Ambulatory jackets and braces fulfill but imperfectly the mechanical demands and must be recognized as means of treatment during the acute stage, secondary in efficiency to recumbency. Jackets and braces have their place in the treatment of all cases as soon as the acute stage is over and must in many instances constitute the sole treatment on account of circumstances of the patients.

Finally, I would call attention to the conclusion of a paper which I published some 13 years ago[13] as presenting a point of view that I have seen no reason to change.

"Whether we wish to follow the best treatment or not may be a question, but it is the writer's belief that treatment by recumbency, so prevalent in the early days of orthopedic surgery, will come again to the front if the real value of supporting apparatus is studied."

That a change in the point of view in this direction has occurred is in a measure true, but in America the ambulatory treatment of spinal tuberculosis is today being pursued to a far greater extent than its merit warrants and is bearing for its fruit many bad results which would be avoided by the proper recognition of the value of recumbency.

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The Cleveland Medical Journal

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EDITORIAL

Relation of Treponema Pallida to Histologic Lesions

The consensus of opinion that the organism of syphilis is a protozoon and not a bacterium led to the idea that the reason for the length of the incubation period was the development of a life cycle, which had to be completed before actual infection of the new host could take place. Some brought forward evidence in favor of this hypothesis, which was never confirmed, but no evidence of any importance has been brought forward on the other side until the recent article of Levaditi and Yamagouchi in the *Pasteur Annals*. They inoculated the corneæ of rabbits with bits of cornea from rabbits suffering with syphilitic keratitis, and removed the eyes at intervals, studying the histologic lesions and the distribution and appearance of the organisms. In the first few days the picture is that of an organizing exudate, with a limitation of the parasites to the material inoculated, and in some cases even a partial destruction of them is noted. As the new tissue is formed there appears an increase in the number of the

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organisms, limited to the new formed tissue and closely related to the new formed blood-vessels. Not until the fifteenth or twentieth day is there any involvement of the cornea of the inoculated rabbit, but as soon as this invasion begins it progresses rapidly until the organisms can be found in large numbers among the corneal cells. There is at this time neither gross nor microscopic lesion, the cornea remaining clear and transparent. A little later the usual opacity appears, followed by the characteristic lesions. In one case there was an even longer delay, a keratitis appearing, and clearing up in a few days, to be followed nearly four months later by a typical syphilitic keratitis. In their interpretation of these results the authors feel that they have proved that the organisms of the disease are present at all times in the progress of the lesion in their well known typical form, and show none of the changes which would indicate a cycle. They consider that the delay is due to the time necessary for adjustment to the new environment, and especially to the time necessary for the growth of sufficient new vessels to supply adequate nourishment. Further experiments on susceptible monkeys confirmed these conclusions in every particular.

The work is of extreme interest from many points of view, and not least from the clinical side. The extent of the multiplication before the appearance of the lesion indicates the reason why the removal of a chancre does not abort the disease, the organisms being already distributed beyond the local focus. It appears to Schultz and others that the removal of the chancre is indicated, as it would take away the chief center of growth, and might decrease the severity of the disease. The presence of organisms in large numbers with no lesions is well illustrated in an article by Schultz in the January number of the *Journal of Infectious Diseases,* in which he cites a series of cases of stillborn children in which, although there were no lesions characteristic of syphilis, Treponemata were found in large numbers throughout the body and organs, usually in relation to blood-vessels. The condition was apparently analogous to bacteriemia, the infection being so acute that, before the death of the fetus, there was no time for the development of lesions other than the congestion, etc., usually accompanying any acute infection. This, together with the fact that there are a number of conditions which may cause histologic changes closely resembling those usually attributed to syphilis, makes it evident that in all doubtful cases the demonstration of Treponemata should be demanded.

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Indefinite Returns of Causes of Death

The Health Department of this city has always experienced trouble with the unsatisfactory returns made by physicians in reporting deaths. A large proportion of these returns are indefinite and fail to furnish the necessary information that would render them of value from a statistical standpoint. Since the recent establishment of a bureau of vital statistics by the State, printed instructions have been furnished every physician, which will do much to remedy this state of affairs, provided the physicians give these instructions due consideration. However, even in the past month, during which time the instructions were in the hands of the profession, it is surprising how many unsatisfactory returns have been made to the Health Department. The delay and inconvenience in returning these incomplete returns for correction might easily be avoided by the exercise of a little more care in making out the papers originally. It is not always possible to be absolutely exact as to the cause of death, as for instance when a corpse is found, with no marks of violence, floating in the lake, or when an autopsy has been refused. In such cases the certificate should state the facts. There is, however, no excuse for the use of such indefinite terms as typho-malaria, heart failure, tumor, fever, childbirth, etc., nor for the confusion of the primary and secondary causes. Thus in a case of perforation from typhoid, the primary cause is obviously the typhoid, and yet the perforation is at times given. In the same way in death resulting from a hysterectomy for cancer the primary cause is the cancer. The careful study of the detailed list of titles, with their explanations, in the pamphlet issued by the bureau, will help the physician greatly in avoiding the trouble of making out, a second time, a report incorrectly returned in the first instance.

The Midwife Question

The agitation that has been begun by the State Board of Medical Registration and the Cleveland Academy of Medicine to enforce in this city the law in regard to the proper qualification and registration of midwives is a move in the right direction. The subject was discussed editorially by us in March, 1907, and the results of certain investigation in this line carried out in New York City were pointed out. The plea has been made that the midwives' services are indispensable to the poor, inasmuch

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as they act not only as the accoucheur but also as the nurse and even the housekeeper during the lying-in period. This they do for a small fee within the limits of even the poor. These latter duties the physician cannot assume and they must be left to nurses or midwives unless there are other females in the household or relatives or friends who will come in to perform them. So far as Cleveland is concerned there is no valid reason why the midwives should conduct labors. We have a staff of city physicians to look after poor patients. There are many young practitioners who would be glad of the opportunity of gaining experience even if no fee were in sight and we have three medical colleges anxious to provide confinement cases as clinical material to their students, under the direction of an experienced instructor. All the confinements could be taken care of by these agencies and the midwife could still find a means of livelihood as a nurse for maternity cases. If the family is absolutely without means, or unable to pay even the relatively small fee of the midwife, the Visiting Nurses' Association will provide the necessary care free of charge.

It would be unfair, and also illegal, to deprive those midwives, already properly qualified and registered, of their vocation by forbidding them to act as accoucheurs, but it seems to be high time to abolish this relic of a more primitive civilization and to see that the State Board is empowered to grant no further licenses to them.

Some of our midwives who have been trained in European hospitals are careful in their technic and give good service, but the majority are hopelessly ignorant, filthy and given to meddlesome interference. Furthermore, some are known to be nothing but professional abortionists.

Department of Therapeutics

CONDUCTED BY J. B. McGEE, M. D.

Heart Stimulants: Horatio C. Wood, Jr., in the November number of the *American Journal of the Medical Sciences*, considers the action of the heart stimulants, asserting that there are three essential factors in the action of these drugs which interest clinicians. (1) The stimulant influence upon the cardio-inhibitory mechanism which prolongs the diastole, and thus slows the pulse; (2) The increase in the tonicity of the heart muscle leading to a more complete and more powerful systole; and (3) The constriction of the bloodvessels. The action of digitalis in slowing the pulse is, he believes, a much more important

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factor in its beneficial influence in heart disease than is generally deemed. In cases of chronic heart disease, when it is essential to make the burden thrown upon the feeble heart as light as possible, it appears to him highly important that we do what we can to slow the pulse, and the inhibitory stimulation of digitalis becomes the beneficial factor in its effects. The mere stimulation of the heart muscle is a matter of minor importance. As to the vasoconstricting action of digitalis, this has frequently been regarded as a harmful by-effect to be avoided or combatted, a point of view which he believes has at times led practitioners to adopt irrational or even injurious measures; and while it is true that it requires more force to drive the blood through narrow arteries than through dilated ones, it is equally true that in many cases the vascular contraction is a conservative effort on the part of nature to maintain the circulatory equilibrium. Clinicians should not be too hasty in their efforts to dilate the vessels in cases of chronic heart disease; especially so since almost the only agents which we possess for this purpose, the nitrites, are substances which increase the rate of the pulse and so counteract the beneficial influence of digitalis in slowing the heart. The only reason more harm has not been accomplished by the use of nitroglycerin in heart disease is because the method in which it is given precludes any possibility of its having any serious influence upon the circulation.

The effects of a single dose of nitroglycerin last on an average about three quarters of an hour or perhaps an hour, and how great is the folly then of giving it three times in the 24 hours, and expecting any permanent result. There is a widespread belief that strophanthus differs essentially from digitalis in that it exercises little or no influence upon the blood vessels, a belief for which he has sought in vain for any convincing scientific evidence. Recent investigations indicate that the action of strophanthus upon the vessels is a very marked one, and even if it be less powerful an influence than that of digitalis, the difference is comparatively slight, one important distinction however between the action of the drugs is that strophanthus is less likely to give rise to cumulative toxic symptoms than is digitalis, a fact of general clinical experience which has been experimentally confirmed by Fraenkel. Of adonidin our knowledge is far from satisfactory, but its effects on the heart muscle and cardiac inhibition are similar in kind, if somewhat less in degree than those of digitalis. On the other hand Kakowski found that while strophanthus and digitalis both constricted the coronary arteries, adonidin widened them. In cases of chronic heart disease or weakness, when merely the cardiac action of this group is desired, digitalis yet stands supreme. As to its active principles, digitoxin at present holds the foreground, but this much is clear, that if there be any single principle which represents completely the therapeutic virtues of digitalis that principle is not digitoxin. Kakowski found that neither digitalin, digitalein, nor digitoxin produced the increase in the contracting power of the heart that is brought about by digitalis.

Hemophilia: The *New York Medical Journal* for Dec. 12 states that in that city there has been of late some indication of a tendency to revive transfusion of blood to arrest hemorrhage in hemophiliacs. It seems, however, that a much less for-

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midable procedure is sufficient, that of injecting a small amount of normal serum into a vein or even under the skin. In cases of an accessible wound, too, a simple dressing of serum has been known to prove efficacious. Summarizing the observations of Weiland and others Dr Francois Dejardin outlines the leading points in our knowledge of the nature of hemophilia, covering both the hereditary and acquired forms, and of the modes of action, and degrees of efficacy of such remedial measures as the administration of calcium chlorid, the injection of gelatin, and the topical use of styptics, including adrenalin. The use of normal serum is shown to be preferable to that of any other agent, though Dejardin properly advises that the concomitant use of other measures should not be neglected. We may use the fresh serum of the rabbit, the horse, or the human subject. If injected intravenously, the amount used daily should be from 10 to 20 c. c. (approximately from two and a half to five fluid drams); if it is injected subcutaneously the amount should be from 10 to 30 c. c. (from two and a half to seven and a half fluid drams). It is sufficient to continue the injections for two or three days, during which time the desired effect will have been secured, whether the checking of an existing hemorrhage, or the prevention of undue bleeding in the course of a contemplated operation, and the benefit may be expected to last for a month or more. For some unexplained reason, it is dangerous to use the serum of the ox, as has been shown in a number of cases. If an emergency arise, under circumstances in which the fresh serum of the rabbit, the horse, or the human subject is unavailable, a perfectly efficient substitute is to be found in the ordinary antidiphtheric serum. This fact seems to have been first announced by Weil, but in actual practise Dejardin had anticipated Weil's publication of it. Antidiphtheric serum is now readily obtainable almost everywhere; consequently the serum treatment of hemophilia can always be carried out by the general practitioner. There is reason to believe that it will prove of general benefit in this curious disease.

Follicular Tonsillitis: In the *Therapeutic Gazette* for November, George Fetterolf treats of the local use of acetylsalicylic acid (aspirin) in the treatment of follicular tonsillitis. He quotes Dr C. F. Kieffer as first calling attention to the use of the drug in this manner, and confirms his statement as to its efficacy. He has used it in 26 cases, in all but two of which prompt relief was afforded, one of the two being virulent diphtheria. The technic is very simple. When the throat is examined, a probe or applicator, cotton-wrapped at the tip, is gently rubbed over the surface of the tonsils, and if the latter are covered with mucus, as is generally the case, a solution of sodium bicarbonate 1 to 30 is mopped over them. After the tonsils have been thoroughly cleansed, the aspirin, finely powdered in a mortar, is applied in the following manner: A small flexible applicator is firmly but softly wrapped at the end with cotton, moistened with water, and dipped into the powdered drug. An excess of powder should be removed by tapping the applicator a few times. With the probe thus prepared every portion of the tonsillar surface should be carefully and gently rubbed. The upper, lower and posterior surfaces should not be neglected, and after one tonsil has been

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treated, the other, even if apparently not diseased, should be gone over similarly, plenty of time being given so as not to excite too greatly the pharyngeal reflexes. Another method of applying the powder is by means of a blower. After the treatment, the patient is put to bed, a course of fractional doses of calomel followed by a saline laxative ordered and only soft diet permitted. No antirheumatic drug is administered internally unless for psychologic reasons, experience having shown that the local applications of the aspirin at intervals of 12 hours will be found sufficient. At the end of this time, 24 hours in all, the fever and febrile symptoms have usually markedly diminished. At the end of 36 hours the patient can, as a rule, swallow with but a minimum of discomfort. Quite frequently, after the first application, such relief is obtained that deglutition is readily performed. Knowledge of this method of treatment should really receive wide dissemination, since it presents many features of value, and marks a distinct advance in therapeutics; if it is used early patients are saved an attack of one of the commonest and most pitiably painful diseases in the acute inflammatory class.

Gastric Ulcer: J. A. Lichty, in the *International Clinics* (Vol. 4, series 18), asserts that so long as the etiology of gastric ulcer remains unknown, any treatment will be more or less empirical. The character of the symptoms, their severity and gravity will be the chief indication for instituting any remedial procedure. He summarizes the use of rest and dietetic treatment, and advises a light ice bag over the stomach as it gives great relief from pain, and in the event of a perigastritis, which is no doubt present in many cases, it limits the inflammation, and may also prevent the recurrence of hemorrhage. Bismuth subcarbonate in large doses, if it does not cause any discomfort, is no doubt beneficial. Silver nitrate has a decidedly favorable effect on the mucous membrane of a hyperacid stomach, and he believes also upon an ulcerating surface. Belladonna or atropin on account of its well known inhibitory effect upon gastric secretion is also a valuable remedy. The alkalies, bicarbonate of soda, and carbonate of magnesia can also be used when there is a decided hyperacidity. With the line of treatment outlined it is rarely necessary to treat specifically such conditions as pain, nausea and hemorrhage, for the symptoms vanish in the course of treatment. Should they continue, however, special measures can be adopted. Severe pain will yield to orthoform, codein or morphin, but he has never had to resort to opiates. Chloretone in three to five grains doses will often control vomiting, and hemorrhage is probably favorably influenced by the administration of adrenalin in capsule. In some cases occasionally none of these symptoms may yield until the patient receives enough morphin hypodermically to become thoroughly narcotized. After an extensive experience with cases of hyperchlorhydria he has come to the conclusion that iron is not well borne by a hyperacid stomach, and in these cases he has found very few cases can take it by the mouth. He has used hypodermically a preparation of the glycerophosphate of iron and sodium and cacodylate of sodium in normal salt solution, put up in glass capsules ready for use. It does not produce any abscess and from experi-

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ence thus far he believes it of value. All patients should be kept under observation and have their diet supervised for a year or longr. Ulcer of the stomach may produce such pathologic conditions as to place it beyond medical treatment. when it then becomes a surgical condition.

Tonsillar Infection: In the *Monthly Cyclopaedia and Medical Bulletin* for December, Rufus B. Scarlett writes concerning systemic infection through the tonsils, and while it has not been demonstrated, beyond a doubt, that bacteria may gain entrance into the system through the tonsillar parenchyma, it has been proved when the crypts contain the whitish decomposing masses which have undergone retention. In several cases reported a crypt was found to be dilated near its base, and to contain fetid puriform fluid, although its existence was discovered only after excision. Since it is an undisputed fact that the best means to overcome any infection is to remove the source of its supply, the complete removal of these glands, or tonsillectomy, is justifiable when sufficient evidence is present, to indicate that they have become pathologic, and are causing systemic disturbance. The size should not always be considered in advising removal, for, according to Goodale, chronic absorption of bacterial products may occur in the small or nearly atrophied tonsil, as well as in the hypertrophied one. The presence of irregularities or recesses also may often interfere with proper drainage, and allow some degree of absorption of these bacterial products. Eisendrath advises early and radical removal in all cases, since tonsils and adenoids are the most frequent atria of infection, particularly for tuberculosis, which occurs in about five percent of all cases of tonsillar hypertrophy. Statistics have shown, and experience has verified the results of others, that the satisfactory development of the child is more readily encouraged by the removal of diseased tonsils, than if they are continually treated with caustics of various sorts, with the hope that they will atrophy at puberty, and cease to cause trouble.

Bismuth Poisoning: In the *New York Medical Journal* for Jan. 2, Emil G. Beck reports concerning bismuth poisoning. Toxic effects from the use of bismuth subnitrate in medicine and surgery are so rare that, until recently, physicians have regarded its administration as perfectly harmless. Schuler and Von Bardeleben have pronounced its action as non-toxic, the latter having treated 100 cases of extensive burns by dusting with bismuth subnitrate, and observed no unpleasant symptoms therefrom. Prof. Muhlig administered 20 grams daily for a prolonged period without producing any poisonous effects. The subject of bismuth poisoning came into comparative revival only within the past two years when radiographers began to employ the drug more extensively. He concludes (1) Bismuth subnitrate administered by stomach in small doses is harmless. (2) In the presence of certain bacteria in the feces of children, bismuth subnitrate will liberate nitrites which will then be absorbed by the intestines and eliminated by the kidneys, and if the production is faster than the elimination methemoglobinemia will result. (3) In large doses by mouth it is

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liable to produce an acute nitrite poisoning, characterized by cyanosis, collapse, methemoglobinemia, and may terminate fatally. (4) Rectal injection of small doses of bismuth subnitrate may cause nitrite poisoning much quicker and more severely than when administered by the mouth. (5) Children are more susceptible to nitrite poisoning due to administration of bismuth subnitrate. (6) Persons suffering with intestinal putrefaction are susceptible to nitrite poisoning when bismuth subnitrate is injected into the bowels. (7) The bismuth injected in these sinuses, and encapsulated, will be gradually absorbed and may be found in the liver, spleen, muscles and intestines. (8) Characteristic symptoms of black borders to the gums, ulcerations of mucous membranes, diarrhea and desquamative nephritis may appear several weeks following the injection of the paste. (9) After the injection of large quantities of the bismuth paste into suppurating sinuses, mild symptoms of nitrite intoxication may appear. (10) The acute nitrite poisoning is to be regarded as a distinctly separate affection from the more chronic bismuth absorption. (11) Radiographers should employ some other preparation of bismuth than the nitrate, and refrain from injections of subnitrate into the bowels, especially if intestinal putrefaction is present.

Apocodein: In the *Central States Medical Monitor,* E. S. McKee (*Lancet Clinic*) summarizes the uses of apocodein hydrochlorid. It is useful as a hypodermic remedy to produce a prompt evacuation of the bowels. It is a yellowish-gray to greenish-gray hygroscopic powder soluble in water. It is useful in chronic bronchitis and other bronchial affections, and acts like codein but weaker, producing a large secretion of saliva, and accelerating the peristaltic action of the bowels. Dose, as a sedative, subcutaneously or per os, is 0.02 to 0.06 gram (about 1/3 to 1 grain). Best used hypodermically in a 1 to 2% aqueous solution. It should be protected from air and light. In using apocodein hypodermically as a laxative, Dixon found that the drug does not produce vomiting or give rise to any other ill effect. It lowers blood-pressure, produces vasodilation, and increases peristaltic movements. This, he thinks, is all due to its sedative action on the sympathetic inhibitory ganglia. He suggests a 1 or 2% solution which should be neutral and filtered before used. From 2 to 3 c. c. (30 to 40 minims) may be injected. Lyon has also reported favorable results with apocodein both as a sedative and a laxative. He administered it per os or hypodermically in doses of 1/3 to 1 grain. Prof. Combemale has administered the drug hypodermically to a large number of patients suffering from constipation. He injected 30 minims of a 1% solution of apocodein hydrochlorid, which was followed in almost every case within a half hour by one or two loose stools. He considers the remedy as worthy of special attention, because the number of remedies which, when used hypodermically, will produce an evacuation of the bowels, is extremely limited. He found some pain and redness at the site of the injection, which he was able to avoid by injecting directly into the muscle instead of under the skin. In none of the cases did the apocodein produce any bad effects. Podophyllin contains podophyllotoxin. One-half grain injected under the skin produces liquid stools in from 20 minutes to one hour.

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The Personal Factor: Beverly Robinson, in the *Medical Record* for Oct. 17, calls attention to the personal equation in disease, believing it to be of more real importance in practise than anything else. Exercise, worry, heat, tire of mind and body, may bring out symptoms and signs in one individual and not at all in another. Medicines, as we know, act very differently and sometimes alarmingly in different patients, and we frequently have absolutely no means of knowing, in advance, why, or in what manner they cause these occasionally untoward and unexpected effects. The wise physician should be guided and directed by his acquired knowledge, so as to be most useful to his patient. And so it is with every new drug and every new combination of drugs; one must be extremely careful and give small, very small, doses, until one has gauged properly the personal equation of the individual. We must believe, therefore, that a wise judicious empiricism, in the way of caring for patients, in administering drugs, in trying to relieve symptoms, and perhaps cure disease, is thoroughly allowable and desirable, and this despite all of the advances and teachings of the most recent scientific methods of research.

Antipyretics: In the *American Journal of Clinical Medicine* for January, Caura concludes concerning the coal-tar antipyretics: (1) Among these antithermics, thallin and resorcin are agents whose action is evanescent, uncertain and dangerous. (2) The defervescent alkaloids should always be preferred. (3) Antipyrin offers no advantages over the antithermics named. (4) The physician who desires to avail himself of these remedies should first ascertain the elementary dose, and follow with fractional doses. (5) It is always necessary to avoid too large doses. (6) When fever is a critical factor of the malady it is not logical to dissipate it entirely. (7) It is necessary to lower gradually too high temperatures, and never break them by a single blow. (8) In every case it is necessary to study the idiosyncrasies and contra-indications which may occur so frequently during the course of the disease, as well as its complications, and the condition of certain organs.

Academy of Medicine of Cleveland

The annual meeting was held Friday, December 18, 1908, at the Cleveland Medical Library, the President, H. W. Rogers, in the chair.

A synopsis of the reports presented is as follows:

REPORT OF THE SECRETARY

The growth of the Academy had been a healthy one, there being 114 new members as shown in the following:

	1907	1908
Active	466	516
Non-resident	89	125
Associate	4	20
Honorary	2	5
	561	666

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Losses—		
Resigned	8	9
Deaths	4	1
Suspensions	9	0
	21	10

As the local member of the State Committee on Public Policy and Legislation, the Secretary had made seven trips to Columbus, and two to other points to meet with the State Council or the State Legislative Committee. The work of this committee had almost deprived the local Legislative Committee of its field of activity. A resume of the Bills of interest to the profession, passed by the General Assembly of 1908, was given.

During the year the Council held nine meetings with an average attendance of over 10. The important committees of the Council were:

A committee of three to consult with the Staff of Lakeside Hospital and the Central Nurses Registry to bring about support of the Library Association Nurses Registry by physicians in general.

A committee to express the disapproval of the Academy of a bill for the State Registration of Nurses, endorsed and furthered by the Cleveland Chamber of Commerce.

A committee to devise ways and means for proper legislation affecting the Coroner's office.

A committee to confer with the Commissioner of Sanitation to ask abolition of the selling of vital statistics by employees of the Public Health Department.

A committee of one to act as delegate to the International Congress on Tuberculosis.

A committee to confer with the Committee of the Cleveland Medical Journal Company Directors to consider the taking over by the Academy of the CLEVELAND MEDICAL JOURNAL.

Among the more important of the transactions of the Council were:

The employment of a stenographer to report the Academy proceedings.

A collection of $215.50 for the State Legislative Fund.

Urging upon the local representatives in Congress the necessity of more careful inspection of vessels on the Great Lakes in the interests of public health.

The election of veterinarians to associate membership, providing opportunity for the study of comparative pathology.

Extending aid to the State Board of Health, in the regulation of maternity boarding houses and lying-in hospitals.

Aiding the Chamber of Commerce in their various investigations.

Authorizing a public meeting for the discussion of tuberculosis. Also a public meeting at which the relations of physicians and the public would be discussed.

Improving the lighting of the auditorium of the Medical Library Association.

Authorizing the organization of a medico-legal section of the Academy.

An endorsement of the efforts of Surgeon General Wyman for his contribution in the preparation of the new United States Pharmacopeia.

Authorizing an investigation of the so-called Emanuel Movement.

Endorsement of the sale of Red Cross stamps for the benefit of the Anti-Tuberculosis League.

Considerable time was devoted by the Secretary to the prosecution of illegal practitioners and some progress had been made. Three of four had been driven from the city, one had been convicted in the United

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States Court and sentenced to the penitentiary. Another was found guilty in Police Court of practising without a license. The case of Dr Geer was reviewed with the County Prosecutor making it clear why conviction was not obtained. The Academy was under great obligations to Dr A. P. Hammond for his labors in this field.

The appointment of an incoming member of the State Board of Health was also taken up. The result was not known at this time.

During the year 24,950 notices and communications had been mailed from the office of the Secretary.

REPORT OF THE TREASURER

Income, Balance from 1907	$ 397.26		
Active members' dues	1,903.99		
Other members' dues	115.00		
Interest	17.93	2,436.18	
Expenditure			$1,808.56
Balance			627.62
		$2,436.18	$2,436.18

REPORT OF THE PROGRAM COMMITTEE

Number of meetings, 12. Total attendance, 1694; largest, 252; average, 141; a general gain over 1907. Papers presented, 25. Ten out-of-town guests delivered addresses or discussed other papers. They were: S. P. Beebe, New York; John L. Morse, Boston; Arthur Dean Bevan, Chicago; Charles G. Stockton, Buffalo; John Y. Brown, St. Louis; B. G. A. Moynihan, Leeds, England; Wallace I. Terry, San Francisco; J. C. Reeve, Dayton, Ohio; Clemens von Pirquet, Vienna, Austria; and C. L. Detre, Buda Pest, Austria.

REPORT OF THE CLINICAL AND PATHOLOGICAL SECTION

Meetings held, nine. Total attendance, 769; largest, 88; smallest, 25; average, 85. Specimens presented, 10. Patients exhibited, 26.

REPORT OF THE SECTION OF EXPERIMENTAL MEDICINE

Meetings held, six. Total attendance, 295; average, 49; largest, 88; smallest, 25. Number of papers read, 11; one of which was presented by an out-of-town speaker.

REPORT OF THE OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

Meetings held, seven. Average attendance, 18. Papers read, 14. Cases exhibited, 13. Specimens presented, six. Reports of cases, five.

Reports of the Auditing Committee and the Public Health Committee was also read.

The following officers were elected for 1909: President, W. E. Lower; Vice-President, H. B. Ormsby; Secretary, C. E. Ford; Treasurer, W. S. Hobson; Trustees, J. M. Ingersoll and W. B. Laffer.

The program was as follows:

The Modern Treatment of Tuberculosis of the Spine, by Robert W. Lovett, M. D., Boston, Mass. (Appearing in full on page 76.)

W. G. Stern, in the discussion, pointed out that it was difficult to carry out the recumbent treatment for any length of time in this country. The same people who would consent to Fink's recumbent treatment for three years in Europe, would object, after they had emigrated to America.

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The parents insisted upon ambulatory treatment if the patient was having no pain. For this purpose the irremovable plaster jacket, correctly applied and reaching sufficiently high up, was the best. Removable jackets and braces would be carelessly put on by the patient and prove inefficient. The principles in the care of surgical tuberculosis were now pretty definitely settled. As Halsted pointed out, the surgeon did nothing more than remove a small amount of tuberculous material and this had to be followed up by an antituberculous regime as in pulmonary tuberculosis.

H. O Feiss sincerely believed in the plaster jacket, although it could hold the torso only. It could not grip the spine. Plaster in many ways did not meet the requirements and it was filthy. The jackets became loose or broken and often did not hold as well in five or six weeks as they did in the beginning. He thought as this was a mechanical age we should try to devise some better method than plaster.

G. I. Bauman asked what percent of absolute cures the speaker had had by the recumbent treatment. Fink reported 52 cures, with the kyphus entirely eradicated, out of 56 cases. The treatment by recumbency was the ideal but difficult to carry out and to get the parents to continue it. He understood Fink recommended recumbency for six months to two years instead of three years and then he got the patient up and applied a sort of celluloid corset. He also asked as to the experience of the speaker with the use of bismuth paste in the treatment of abscesses. He thought that when these had to be opened they healed quicker with the bismuth than by any other method.

C. E. Briggs asked if what the speaker had said in reference to such cases, in general, was not particularly so with tuberculosis of the spine in adults, in whom the difficulties were so much greater than in the child.

C. F. Hoover said that he had nothing to offer in regard to the treatment, but he was sometimes in doubt as to whether the patient had Pott's disease or not. In children this was not so difficult, but it was so in adults at times. He had found it advisable to try a lumbar puncture to see if there were an involvement of the meninges, as confirmatory evidence in diagnosis. In four cases he found an increase in the lymphocytes which aided in the diagnosis and led to persistency in the treatment. There must be many adult patients with Pott's disease who did not show deformity and were without points of local tenderness. He remembered doing an autopsy upon a man whose spine was carious from the last dorsal down to the sacrum. There was simply a smear of pus over the entire aspect of the vertebral column, but there was no pocket of pus or abscess. He had not been tender and showed little deformity; he had, however, other tuberculous areas. There was nothing on which to base a suspicion of abscess. Not long ago he saw a man who had been having his stomach washed out regularly and who was afterward found to have Pott's disease. The orthopedist saw these men after they had the hump, but as the general practitioner saw them, they complained often of pain in the groin or about the navel. They thought it was their stomach and so came to the medical man for treatment. When they went to the orthopedist the line of their spine had changed and the diagnosis was an easy matter.

C. B. Parker recalled that at the beginning of his career over 30 years ago the established treatment, especially in the young, was by the recumbent posture. If a case occurred in a child of a poor family, he had a small cart made, narrow enough to pass through the doors and provided with a mattress and pillows. The child could be easily moved about on this and taken out of doors. He did not attempt to overcorrect the deformity as he felt he could accomplish but little. The longest period that he had used the recumbent posture, in any one case, was 28 months, the patient making a perfect recovery. He believed that drugs were of use and, in addition to forced feeding, gave cod-liver oil, especially

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in winter. He gave it two hours after meals and often gave with it the syrup of the iodid of iron. He agreed with the speaker as to the inadvisability of opening a psoas abscess too soon, as the absorption of the sterile pus would do but little harm.

R. W. Lovett, in concluding, could not speak regarding his figures. He did not know how many complete cures he had had. The deformity in many of his cases had certainly been diminished. In regard to the use of bismuth paste he had used it principally in old sinuses, with some very satisfactory results. In the case of adults, it was particularly necessary to adopt the measures he had described, because in them the disease was so much more likely to be acute. C. F. Hoover's statements were very suggestive and he was very sure that we allowed many cases to go as Pott's disease which were not. In the past, many cases of infectious arthritis had been classed as Pott's. He realized the difficulty of enforcing the recumbent treatment as he was in charge of a large outdoor department for the treatment of tuberculosis. What he desired to do was to draw attention to the relative value of the two methods, because we should not deceive ourselves when we used the ambulatory treatment. When called to take charge of a case of Pott's disease we should explain the conditions to the parents, telling them that the one method was far superior to the other and leave it to them entirely. He was not so much of an idealist as to think that we could treat all our cases of Pott's disease by the recumbent posture but we should not deceive ourselves by thinking that when ambulatory treatment was used the case was being treated efficiently.

The President, H. W. Rogers, at the conclusion of the meeting said that he would depart from the usual custom of the retiring President delivering a formal address. He asked for the continued support of the members in aiding the efforts of the Program Committee, as the work required of this committee was far greater than one unfamiliar with the facts would realize. He thanked the members for the honor they had conferred upon him in electing him President and for their cordial support during his term of office.

W. E. Lower, the President Elect, then took the chair and in a few words thanked the members for his election and asked for their aid in making the coming year a successful one.

CLINICAL AND PATHOLOGICAL SECTION

The fifty-sixth regular meeting was held Friday, January 8, 1909, W. B. Laffer in the chair.

C. A. Hamann presented a patient whom he had operated upon three years before, removing a superficial ulcerating mass the size of a quarter dollar from the sole of the foot. Skin grafting was done and healing occurred. The tumor was thought to be a sarcoma but proved to be an epithelioma. Recently secondary growths developed in the glands of the groin, in the palm of the hand and on the sole of the foot. Similar appearing keratoses and growths had been described by Jonathan Hutchinson as due to the prolonged administration of arsenic. He had understood that this patient had taken no arsenic but she had just informed him that she had done so for two months at least.

F. W. Hitchings showed a specimen of perforating duodenal ulcer. The patient, a man of 58, had been apparently in perfect health, except for some loss of appetite and slight pain radiating from the abdomen into the chest. While carrying a heavy grip, he was seized with acute abdominal pain and rapidly collapsed. General peritonitis rapidly developed and proved fatal in 36 hours. The sudden onset, the absence of premonitory symptoms and the feeling of something giving way in the stomach region were points of interest.

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G. W. Crile recalled a similar instance of sudden perforation of a duodenal ulcer with acute pain as a result of lifting a heavy weight. He had seen another case in which there were no symptoms until the ulcer suddenly perforated.

The program was as follows:

1. Eclampsia, E. O. Houck. (To appear in full in the JOURNAL.)

A. J. Skeel, in the discussion, referred to the work of Dienst, who advanced the theory that eclampsia was due to an excess of fibrinogen and fibrin ferment in the blood from the breaking down of leukocytes. The greater frequency of the disease in primiparæ was due to the fact that a higher leukocytosis occurred in them than in multiparæ. Very little progress had been made in the treatment except for the introduction of vaginal Cesarean section. A great deal of work had been done on the urine but the conclusions were still very obscure. Three symptoms, however, were usually easily demonstrable in the pre-eclamptic stage. These were high blood pressure, an increased leukocytosis and albuminuria. A fourth was the change in the eye grounds. With these four symptoms a diagnosis, in the pre-eclamptic stage, was almost always possible. Normally the blood-pressure rarely went over 150 mm. Hg., but in these cases it would go as high as 300. A leukocytosis of 12,000 was usual in multiparæ and from 14,000 to 15,000 in primiparæ, in the pre-eclamptic stage the count was higher. The sphygmomanometer was especially valuable in the diagnosis and he wished to emphasize this point.

H. H. Powell said that eclampsia, as was well known, was a disease of theories. Notwithstanding its antiquity and frequency, practically nothing was known as to its etiology and there was great diversity of opinion as to its pathology. He had seen probably 200 cases in the last 40 years. In this paper were recorded 22 cases of eclampsia and 10 of toxemia. The term eclampsia was a misnomer, referring merely to the flashes of light of which, in some cases, the patients complained. Both these classes were really toxemias. He agreed with Williams that there must be more than one toxin causing the various disturbances classified as eclampsia. The identification of these toxins was a field for the laboratory men. As a clinical man he could offer no suggestions on this point. The proportion of cases at St. Annes having eclampsia was unusually high and would represent, according to statistics, two-thirds of all the cases that should occur in Cleveland in the same space of time. Undoubtedly, if mild cases were included in the statistics, Cleveland would have many more than this. When he began practise 40 years ago all the cases were bled and now the same procedure was again being advocated with the additional improvement, however, of transfusion of blood from a healthy person. The death rate at St. Annes was 36% and was explained by the fact that, as a rule, only the worst cases were sent there.

R. A. Bolt asked what conditions, similar to eclampsia, had been noted in the lower animals such as anthropoid apes. Last summer he had seen Welch's specimens. From these, especially those from the liver, it was impossible to conclude whether eclampsia had occurred or not.

F. S. Clark said that since many cases of threatened eclampsia did not go to term, if the urine were examined in all cass of premature delivery or abortion, a most valuable clue might be gained which might result in saving the patient's life. He thought it advisable to examine the urine in all cases during labor so that if albumin were present, active treatment, such as the termination of labor by the forceps, might be instituted. The treatment of this condition must be vigorous. If purgatives were given, they must be in large doses. Chloral and bromids were useless in small doses. If chloral were needed he would give 60 grains by rectum, as he had yet to see any ill effects from such a large dose in eclampsia.

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J. H. Belt referred to a case he had recently had, a multipara who previously had had seven normal and easy labors. Typical symptoms of eclampsia developed and the urine showed considerable albumin. A large dose of compound jalap powder was given with good effect. He was again called in 24 hours, a convulsion having occurred. There were no labor pains, but chloroform was given and manual dilatation and podalic version performed. A live child was delivered. With hot packs, compound jalap powder and chloral the patient made a good recovery.

G. W. Crile thought the indication was for rapid delivery. This could be best accomplished by an abdominal Cesarean section which, from a surgical standpoint, gave a maternal mortality rate of not over 1% and at the same time gave the child the best chance. At one of the New York hospitals he found they treated all their cases in this way. He had found that the serum of patients with acute eclampsia hemolized normal red cells. In strychnin poisoning the convulsions could be controlled by bleeding sufficiently, therefore they should be as easily stopped in eclampsia. In the place of the vitiated blood abstracted, healthy blood could be transfused. One advantageous result of the bleeding was that the fluid in the extravascular spaces was absorbed and possibly the tissues of the central nervous system could, in this way, be partly freed of the toxins bathing them.

E. Lauder pointed out that, as a rule, in those disturbances of vision occurring in eclampsia, no pathologic changes could be found in the eye. The symptoms were probably due to a toxemia of the central nervous system which would easily account for the blindness. In patients with nephritis who showed retinitis, 98% would die within two years, but in pregnant women who had albuminuria and retinitis, the prognosis was good.

E. O. Houck, in concluding, agreed as to the value of blood-pressure observations in the pre-eclamptic stage. The high mortality rate at St. Annes would indicate that their therapeutic efforts were not active enough and was to be explained by the fact that a number of different men treated the cases. Of the lower animals, bitches occasionally developed eclampsia, but they did so very rarely. The best opinion seemed to be against abdominal Cesarean section unless the vaginal operation was contraindicated by contracted pelvis. The advantages of the latter lay in not opening the abdominal cavity, in its easier performance and the lessened chances of hernia afterward.

2. Report of Cases of Gastric Ulcer with Pyloric Stenosis, M. J. Lichty. (To appear in full in the JOURNAL.)

G. W. Crile, in the discussion, said that rarely did a patient bleed to death from gastric ulcer. If the patient were much run down, and adrenalin, ice, etc., had failed to give relief, an operation could practically always be performed if a preliminary transfusion were given. Unless an ulcer were causing obstruction it should always remain a medical case. He had been markedly disappointed in operating on one or two of these cases and in recurring hemorrhage from ulcer without obstruction. Surgery as well as medicine found difficulty in curing a bleeding gastric ulcer. In tuberculous cases the sheet anchor was in improving the patient's condition and this must be by means of food. In such cases an operation could be done under local anesthesia or with nitrous oxid gas. If pylorectomy gave the best results, why was it not always done? It was certainly better than the establishment of a vicious circle. In obstruction due to ulcer he thought a gastro-enterostomy better than a pylorectomy unless there was some suspicion of early malignancy, in which case, if the patient's condition permitted, a pylorectomy should be done as well as a gastro-enterostomy.

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R. E. Skeel said that stomach surgery was so much in its infancy that no one could answer authoritatively the speaker's questions. Since at present no one knew why we had gastric ulcer, it was impossible to say that gastro-enterostomy should be done for gastric ulcer. We must wait until the cause was known or until enough statistics had been compiled to show whether gastric ulcer was a medical or surgical case, and whether the ulcer should be excised or what was the best operative method. One knew that pyloric stenosis should be operated upon, but in any individual case one must proceed as seemed best for that particular case. Patterson stated that out of a great many chronic gastric ulcers, 80 or 90% were cured.

L. W. Ladd said that the experimental work of Turck on the production of gastric ulcer in animals, by feeding them cultures of colon bacilli obtained from human beings suffering from gastric ulcer, indicated that some progress was being made in determining the etiology of this condition. The specimens showing these experimental lesions, exhibited at the last meeting of the A. M. A., were very striking.

M. J. Lichty, in concluding, said he was very glad to hear the opinions expressed by the surgeons. He agreed that each case should be treated individually. The work of Turck on the experimental production of gastric ulcer was some of the best that had been done. He had heard a surgeon from another city say that a gastric ulcer was a surgical condition so soon as it was diagnosed and that, since we had adrenalin, no man had a right to lose a case of ulcer from hemorrhage, a sentiment which he could not endorse. He thought that a severe hemorrhage should be treated by the physician. Patterson said he would not operate in a case of hemorrhage. On the other hand Keen and Musser had advocated early operation in copious hemorrhage. An ulcer without obstruction or a continuous ulcer with slight obstruction was a very annoying condition with which to deal. A year ago one of the best surgeons in the country operated upon such a case of his with gastric ulcer and but slight or no obstruction. The surgeon followed the rule and did no gastro-enterostomy, while he believed that a large opening should have been made. The patient had had a more or less chronic ulcer ever since and was opposed to further operative treatment. Einhorn's observations on the postoperative treatment of gastric ulcer was most discouraging. The results after operation were not what we wanted. A colleague told him recently that a patient of his was soon to have a third operation on the stomach. Stockton claimed that in simple stricture a pylorectomy should be done instead of gastro-enterostomy, although pylorectomy was the more severe operation.

3. Some Bone Deformities and Diseases, C. A. Hamann. (To appear in full in the JOURNAL.)

W. G. Stern, in the discussion, said that although the speaker stated that atrophy of bone did not follow traumatism, he had seen a man whose spine had been injured by falling bricks and who did not show any symptoms for four months, then a kyphosis developed. At the law suit which followed, some of the surgeons could see no relation between the injury and the subsequent deformity. In Vienna all spinal cases were radiographed and opinions given by all the different surgeons; later, when some of these cases came to autopsy, the findings were compared with the diagnosis. He had been surprised to find that three or four times as many spinal injuries were present as could be diagnosed. Some years ago he had shown at the society a specimen of bone atrophy following one of the acute diseases, either scarlatina or measles. In such cases the bone ceased growing, leaving one limb shorter than the other.

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ACADEMY MEETING

The sixty-third meeting was held Friday, January 15, 1909, the President, W. E. Lower, in the chair.

The program was as follows:

1. The Diagnosis and Treatment of Tumors of the Brain, Arnold Peskind. (To appear in full in the JOURNAL.)

H. B. Ormsby, in the discussion, said that these cases were so rare, we were apt to forget all but the cardinal symptoms. He had had a case about 10 years ago with the three main symptoms: rigor, vomiting with vertigo, and choked disc. The patient, aged 55, had had vertigo for eight months. This increased so that he would fall. He had very severe vomiting, sordes on the teeth and tongue and later choked disc. When he had first seen the patient he was having his stomach washed daily for gastric catarrh, but with no relief. An unfavorable prognosis was given and two months later he died. At autopsy four sarcomata of the brain were found.

E. S. Hannum had had a case with none of the cardinal symptoms. A paralysis of the external oculomotor muscle, causing double vision, was the only symptom except, possibly, for some vertigo. There was no pain or vomiting until long afterward. The case was of traumatic origin.

I. M. Belkowski said that the slow onset in some cases should not cause doubt as to the presence of a tumor since a glioma might infiltrate slowly and cause no symptoms. In some cases of tumor, in which death resulted from hemorrhage, only an autopsy would show the tumor. Glioma and sarcoma were sometimes hard to distinguish microscopically, the difference being a preponderance of either the intercellular or the cellular tissue. Sarcoma was usually more encapsulated and a glioma more infiltrating.

2. Intestinal Hemorrhage in Typhoid Fever, J. H. Lowman. (To appear in full in the JOURNAL.)

J. Dickenson asked in what proportion of typhoid hemorrhages, meteorism occurred. In all of his cases there had been abdominal distension.

E. O. Houck asked whether it was not advisable, in some cases, to avoid the use of stimulants, such as digitalis, strychnin, etc., when hemorrhage occurred.

W. E. Lower asked in what proportion of cases of hemorrhage in typhoid, hematuria occurred. He had had a case of hematuria which he thought might have been due to an old typhoid ulcer. Typhoid bacilli were eliminated in the urine and the question came up whether or not they could produce a lesion in the bladder.

J. H. Lowman, in concluding, said that sudden meteorism with rapid fall of temperature and followed by hemorrhage, was recorded in three of these cases. He did not think there was, as a rule, meteorism of any extent. After a hemorrhage all food should be absolutely discontinued for three days and the patient given nothing but water. This had been the rigid rule at Lakeside for two years. He would follow the general indications for the use of stimulants as in any exhausted condition. Digitalis or camphor could be used, especially in low blood-pressure, strychnin also was used. Hematuria was unusual and due to a hemorrhagic diathesis as well as the local effects of the toxins on the bladder mucosa. He had seen but two cases. In one very extreme case of hemorrhage of the palate, due to hemorrhagic diathesis, blood could be seen oozing from the roof of the mouth drop by drop. A striking point, that he had not seen mentioned, was the close association of hemorrhage and perforation. Over 52% of these cases of hemorrhage had perforation and 12% had pain. The significance of pain was therefore greatly increased and should not be forgotten. It indicated that the floor of the ulcer was on the

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serous coat, that there was a localized peritonitis and impending perforation. Abstinence from food had certainly caused a low mortality in hemorrhage cases. In some years the mortality was higher than in others, due to the greater severity of the disease; thus in 1906 there was a mortality of 11%. All their deaths were due to perforation or hemorrhage and none to toxemia. This was due to the Brand water treatment which had reduced the mortality from 25% to 4.15%. Toxemia did not occur with this treatment although he still saw it in private houses when the water treatment was not completely carried out. When he was a house-physician, many deaths were due to toxemia, the patients simply "burned up." At that time, before the Brand treatment was introduced, he studied the cases in Charity Hospital and found a mortality of 25%. Jaccoud reported the same mortality of 25% in a review of 25,000 cases collected from various hospitals. The reduction of this mortality to 4 and 5%, and in some years to less than 2%, was due to the control of the toxemia which had practically disappeared in hospitals where the Brand treatment had been persistently and rigidly enforced.

THE OPTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The thirty-eighth meeting was held Friday, January 22, 1909, J. N. Lenker in the chair.

J. E. Cogan presented a probable case of wood alcohol blindness. The patient, a salesman, aged 39, was admitted to St. Alexis, June 21, 1908, totally blind. On June 12, 1908, he received from some lumbermen a quart of hard cider which had something added to it to increase its strength. For several years he had been accustomed to drinking hard cider stiffened with whiskey or alcohol but this mixture did not taste the same and it produced an unusual form of intoxication, differing from anything he had ever before experienced. The following morning, at 10 o'clock, his sight began to fail and by 4.30 P. M. he was totally blind. This condition had since remained and there was complete atrophy of both optic nerves.

T. A. Burke showed a case of unilateral papillitis of sudden onset and uncertain etiology. The patient, aged 35, was the mother of three children, one aged 11, and twins born in January, 1908, and nursed until the following November. On December 18, 1908, she noticed on arising from bed that she could not see clearly, everything appearing as if covered by a veil. She was unable to read or sew. On the following day she could read with some difficulty with her right eye, but not at all with the left. There was no specific history. When he first saw her on December 24, the vision of the right eye was practically normal and the fundus was also normal. The left eye showed 20/200 and a characteristic papillitis. The curious features of this case were the sudden onset and the uncertainty as to the cause. Probably it was due to lactation and the nursing of twins.

A. R. Baker reported the results of two cataract operations in which the lens was removed in the capsule. The instruments used in the operation were also shown.

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Cleveland Medical Library Association

The annual meeting was held at the library, Monday, December 14, 1908. The President, H. G. Sherman, in the chair.

The report of the Secretary, H. L. Sanford, showed a gain of eight in the membership:

	1907	1908
Honorary	2	2
Subscribing	58	57
Active	166	175
	226	234

Reading privileges had been granted to three.

Gains New members		21
Losses, Resigned and dropped	12	
Death	1	13
Net gain		8

The principal addresses delivered during the year were: "Studies on Aneurism," by James G. Mumford, Boston, Mass. An illustrated lecture on "Buddhism," by C. B. Parker, of this city. "Medical Ethics," by F. C. Shattuck, Boston, Mass., this being the last of a course of lectures to the students of Western Reserve Medical College, and "The Psychic Element in the Treatment of the Sick," by T. C. Miller, Massillon, Ohio.

The report of the Finance Committee by the chairman, H. E. Handerson, showed that the permanent fund of the Association amounted to $8,008.07, invested as follows:

Mortgages on city real estate	$4,700.00
Citizens Savings and Trust Co., trust funds	3,308.07
	$8,008.07

The income of the fund for the past year had been $457.85, an average rate of 5.72%.

The report of the Treasurer, W. E. Bruner, was as follows:

I. GENERAL FUND

RECEIPTS—

Balance on hand as reported at Annual Meeting December 9, 1907	$ 23.87
Dues owing from 1907 and earlier	205.00
Dues for 1908, including Hospital Assistants	2,057.00
Dues for 1909	20.00
Interest on invested funds	462.00
Nurses Bureau	266.50
Medical Department, Western Reserve University	175.00
Dr. Parker's Lecture	42.25
Rent of Auditorium, Rebate on Insurance, etc.	38.45
Cleveland Academy of Medicine	436.42
Special Contribution	230.00
Total	$3,956.49

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EXPENDITURES—

Artificial Gas	$ 42.10	
Natural Gas	174.98	
Electricity	202.08	
Coal	130.00	
Water Rent	5.70	
Telephones	146.45	
Insurance	135.00	
Repairs and Supplies	174.28	
Librarian's Salary	1,550.00	
Journals	697.07	
Binding Book and Journals	136.95	
Printing	66.50	
Postage	67.00	
Library Supplies	78.39	
Dr. Mumford's expenses	32.00	
Refreshments at Annual Meeting	34.40	
Rent of Piano for two years	30.00	
Membership in Medical Library Association	10.00	
Surety Bond	5.00	
Express, Freight, Cartage, etc	62.87	
Total	3,780.77	$3,780.77
Balance		$175.72

II. NEW BOOK FUND

RECEIPTS—

Balance on hand as reported at Annual Meeting, December, 1907	$ 5.25
Mr. W. D. B. Alexander, special gift	73.40
Members of Association, special subscription, including Four Hundred Dollars ($400.00) from Dr. D. P. Allen	1,235.00
Eye, Ear, Nose and Throat Section, Cleveland Academy of Medicine	138.88
Interest	8.05
Total receipts	$1,460.58

EXPENDITURES—

New Books, Transactions and other Publications	$1,014.42	
Freight or Express, Cartage, Entry Fee, etc	28.61	
Total expenditures		$1,043.03
Balance on hand		$417.55

THE REPORT OF C. A. HAMANN, DIRECTING LIBRARIAN

Books, Journals, Board of Health, Hospital and other Reports, and Medical Society Transactions in the Library at this date are as follows:

Books	6,867	Volumes
Bound Volumes of Journals	4,185	"
Unbound Volumes of Journals	1,654	"
Medical Society Transac., Hosp. and other Reports	2,387	"
Total	15,093	"

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Pamphlets and Dissertations	6,571	
Theses	62	
Books loaned to members	896	(306 more than in 1907)
Volumes bound	186	
Borrowed from Surgeon General's Library	81	
Books Purchased	355	Volumes
Journals subscribed for, Foreign	56	
Journals subscribed for, American	25	
Nurses calls filled	344	(49 more than in 1907)
Visitors registered	1,191	(291 more than in 1907)

Donations to the Library were as below:

Bound Volumes	749	Vols. (331 were duplicates)
Unbound, complete volumes	50	"
Numbers of Journals	1,701	
Pamphlets and Reprints	567	

The following Journals have been added to the list:

Archives Generales de Chirurgie.
Archiv für Laryngologie und Rhinologie.
Comptes Rendus Hebdomadaires Societe de Biologie.
Zeitschrift für Geburtshülfe und Gynäkologie.
Monatsschrift für Ohrenheilkunde, etc.
Monatsschrift für Geburtshülfe und Gynäkologie.
Zeitschrift für Urologie.
Zeitschrift für Krebsforschung.
Medizinische Klinik.
Archives of Diagnosis.
Archives of Internal Medicine.
Quarterly Journal of Medicine.
Proceedings of the Royal Society of Medicine.
Journal of Obstetrics and Gyn. of the British Empire.
Psychological Clinic.
Charities and the Commons.

Among the other purchases of note may be mentioned the missing volumes of the "Archiv für Klinische Chirurgie," "Deutsches Archiv für Klinische Medizin," "Archives of Otology," "Archives of Ophthalmology," Transactions of the London Pathological Society, Clinical Society, Guy's Hospital Reports, St. Thomas' Hospital Reports, Medico-Chirurgical Society Transactions and St. Bartholomew's Hospital Reports; bringing those publications up to date. Also the "Royal Ophthalmic Hospital Reports," 14 Vols., and Transactions of the Ophthalmological Society of the United Kingdom, 25 volumes; Verhandlungen des Vereins süddeutscher Laryngologen.

The following officers were re-elected for 1909: President, H. G. Sherman; Vice-President, D. H. Beckwith; Secretary, H. L. Sanford; Treasurer, W. E. Bruner; Directing Librarian, C. A. Hamann.

The following members were elected trustees to serve for three years: S. H. Large, J. A. Stephens, F. C. Herrick, Jos. F. Hobson, C. E. Briggs, F. S. Clark, C. A. Hamann, W. R. Lincoln, A. F. Spurney, E. F. Cushing.

The address of the evening was delivered by the Vice-President, D. H. Beckwith, and appeared in full in the January issue of this JOURNAL.

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The Milk Commission of the City of Cleveland

REPORT FOR 1908

The Milk Commission has to report, on the whole, a very successful year. The daily production of Certified Milk averages 800 quarts. During the past year the gain over the year before has been over 2000 quarts per month.

Several new buildings have been added at the farm at Novelty. A new fireproof barn 40 x 120 feet, of the most modern type, and accommodating 60 cows, has just been completed. This gives us the opportunity of gradually increasing the herd to the point where the production may keep up with the increasing demand.

The new milk house, nearly ready for occupancy, is a two story structure of ample proportions situated nearly 200 yards from the nearest barn and close to the railroad track. A special feature of the milk house is the large sterilizing room which is capacious enough to hold all the bottles and utensils required for one day. Heretofore it has been necessary to sterilize in sections. The situation of the milk house so far away from the barns will undoubtedly go far to solve the fly nuisance, until now, at times, an almost insurmountable obstacle. At the same time, the proximity to the railroad will ensure better cooling facilities as well as greater dispatch in the handling of the milk.

Another improvement which has been in force several months is the sealing of the bottles with a metallic cover, fastened to the neck of the bottle by wires and a leaden seal. The paraffined cap, with the Commission's seal and date of delivery stamped upon it, is used as before, and is put in first, the metallic cap being placed over it. The wires are then pulled tight and fastened with the lead, thus effectually sealing the bottle and taking the place of the round parchment paper cover and rubber band.

The advantages of the new method of sealing are three: 1. Tampering with the milk is prevented. 2. Ice or drippings from the same cannot enter the bottle. 3. It makes a much neater and cleaner looking package.

The additional expense involved in the sealing up of the milk, as well as the small margin of profit for the producers up to that time, necessitated raising the price of Certified Milk from 15c to 16c per quart, and from 8c to 9c per pint. The half pints of cream were increased in price from 13c to 16c, and the pints from 25c to 32c.

The monthly reports from our Bacteriologist for the past year have been very gratifying, our standard of 10,000 bacteria per C. C. having been exceeded during that time only once. A recount made within three days of that instance failed to confirm the higher count, so that this contamination must have been accidental or transient.

Our Veterinarian and Assistant Secretary have made regular monthly and sometimes bimonthly inspections of the farm at Novelty. The principal objects of such visits were to observe the technic employed during the milking, the conditions pertaining to the handling of the milk in the milk house and to make inquiry in regard to the health of all employees. These examinations are made without warning and in a critical, but friendly way. During the past year no serious contamination occurred, but slight errors in technic were pointed out from time to time and corrected.

Since the discontinuance of the regular monthly chemical examination a chemical analysis of a specimen of Certified Milk has been made about once in three months by Dr H. D. Haskins of Western Reserve University. These reports, while necessarily varying somewhat, have been on the whole eminently satisfactory. The examinations revealed a milk generally well within the standard set by the Commission.

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The increasing demand for Certified Milk as well as the steadily lessening call for any other milk not up to our standard has had the effect of deciding the management of the Walker-Gordon Laboratory to use Certified Milk only for their system of percentage modification. We believe that the Walker-Gordon Laboratory of this city is one of the first of all Walker-Gordon Laboratories to make this change.

The wisdom of having an annual tuberculin test was brought out by the positive reaction given by one cow which, a few months before, had not reacted to the test. The other 90 cows tested gave no reaction. In making the test, the temperature of each cow is taken and duly recorded seven or eight times. It is taken twice, with an interval of two hours, before the injection and, beginning eight hours after the injection, it is taken every two hours for five or six times.

The Secretary and Assistant Secretary were appointed delegates to represent the Cleveland Commission, at the meeting of the Medical Milk Commissions held in Chicago last June. They report a most successful and enthusiastic meeting. Several experts of national reputation were present and presented papers. Two of the most valuable communications were by Professor Schroeder of the Department of Agriculture, U. S. A., and Professor Ravenel of the University of Wisconsin. "Tuberculosis Infection Through Milk," "The Transmission of Tuberculosis Through Milk" were the titles.

Dr Schroeder reviewed the experiments made by him with reference to the source of contamination with the tubercle bacillus of milk from tuberculous cows. These experiments have shown conclusively that the intestines of such cows eliminate vast hordes of tubercle bacilli, regardless of the site of the lesion. He drew the conclusion that the milk becomes infected by external contamination with the bacilli-laden feces, owing to dirty methods at the dairy. The paper was very ably discussed by Dr Ravenel of Wisconsin University, whose views and experiments appear directly opposed to those of Professor Schroeder. Ravenel claims that a tuberculous cow may, and often does, eliminate through her milk the tubercle bacilli, regardless of the site of the lesion. Ravenel's paper on this point followed Schroeder's. The latter seemed to favor the old view that the bacilli were eliminated in the milk, only when the udder was affected with a tuberculous lesion. If Schroeder is right, his views offer very strong support to those who are making the fight for clean dairy conditions. On the other hand, if Ravenel is right his views offer strong support to those who insist on the necessity of the tuberculin test.

Valuable information of a pratical nature was obtained also from discussion with members and delegates of the various commissions and ideas were much more satisfactorily obtained then could have been done by correspondence.

Book Reviews

Applied Surgical Anatomy, Regionally Presented. For the use of Students and Practitioners of Medicine. By George Woolsey, A. B., M. D., Professor of Anatomy and Clinical Surgery in Cornell University Medical College, New York. New (2d) edition, enlarged and thoroughly revised. In one very handsome octavo volume of 601 pages, with 200 illustrations in black and colors. Cloth, $4.50, net. Lea & Febiger, Philadelphia and New York, 1908.

This work is most timely. As a reference book for the advanced student and the busy practitioner, it is invaluable. The text is clear and concise, brief, and at the same time complete, a quality sadly deficient in many works of this character. Of special value are the chapters on Cerebral Localization, Craniocerebral Topography and the Spinal Cord, being a

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lucid, convenient and authoritative presentation of subjects heretofore discussed in a ponderous fashion.

The illustrations, while not numerous or original, are carefully selected, evidently with the central idea of conveying information rather than the exploitation of a calenderic art collection. The typographic work is adequate.

Annual Report of the Board of Regents of the Smithsonian Institution for the year ending June 30, 1907. Government Printing Office, Washington, 1908.

This report, and especially the general appendix, is always of interest to those concerned in the diffusion of scientific knowledge, which is the whole purpose of the Institution. The appendix contains 29 papers upon scientific subjects by workers in various countries, those articles in foreign languages having been translated into English. Of special interest to the profession is Simon Flexner's paper on Immunity in Tuberculosis, read at the joint meeting of the Association of American Physicians and the National Association for the Study and Prevention of Tuberculosis, held at Washington, May 16, 1906. The Problem of Color Vision, by J. M. Dane, and The Air of the New York Subway, by G. A. Soper, are also of a medical nature.

Physicians Visiting List for 1909. Fifty-eighth year of its publication. P. Blakiston's Son & Co., Philadelphia. Price $1.00.

This convenient visiting list is already well known to the profession and has been extensively used for many years. To those physicians who are unfamiliar with its merits it can be recommended as a most convenient aid in keeping track of the various details of practise. Besides the pages for the list of patients, visits made, etc., there are a number of tables of useful information liable to be required in emergencies.

Saunders' Complete Catalogue of Medical and Surgical Works. Illustrated. Revised December, 1908. W. B. Saunders Co., Philadelphia.

A very complete and satisfactory catalogue showing specimen illustrations of the various works published by this firm.

Medical News

James P. Warbasse, formerly editor of the New York State Medical Journal, has joined the staff of the American Journal of Surgery.

H. B. Ormsby, T. A. Burke, E. O. Houck and F. J. Schmoldt have moved their offices to 446 Rose Bldg.

The Medical Library Association Whist Club met Thursday, January 14, 1909.

The St. Alexis Hospital Alumni Association met at the Hollenden January 7. The following program was presented: Cavernous Sinus Thrombosis, A. H. Lanzer; Serum Treatment of Cerebrospinal Meningitis, A. M. Cheetham. The following officers were elected for 1909: President,

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R. Lawlor; Vice-President, C. E. Ward; Secretary, A. F. Klohs; Treasurer, A. H. Lanzer. The annual banquet of the association was held at the Hollenden, Thursday evening, January 28, 1909, about 40 members were present.

The Lakeside Hospital Medical Society met January 28. The following program was presented: A Case of Ascending Myelitis with Cystitis, and a Case of Charcot's Joint, R. Bishop. Two Cases of Fracture of the Spine, C. Martin. A Case of Friedrich's Ataxia and a Case of Tabes with Abductor Paralysis of the Vocal Cords, C. F. Hoover. The Employment of Incandescent Electric Lamps in Heating the Operating Table, H. Robb. Exhibition of Specimen of Carcinoma of the Greater Curvature of the Stomach with Metastases in the Liver and Portal Vein, S. Haas.

The annual meeting of the Alumni Association of Lakeside Hospital was held at the University Club, January 20. The following officers were elected for the ensuing year: President, A. I. Ludlow; Vice-President, C. E. Pitkin; Secretary-Treasurer, C. W. Wycoff; Member of Executive Committee, C. A. Lenhart.

The Stark County Medical Society met at Canton, January 21, 1909. Program: Prevailing Diseases and Therapeutics, J. F. Marchand. Mammary Abscess, S. S. P. Barnes. Papers upon Surgery, by H. P. Pomerene. Diseases of Women and Children, by E. J. March. Hygiene and Sanitation, by J. P. DeWitt. Ethics and Legislation, J. F. Kahler. President's address, The Physician, His Duty and Rights, J. C. Temple. A Public Address by H. W. Wiley, Washington, D. C.

Battle & Co., of St. Louis, Mo., have issued number eight of their Dislocation Chart series. Physicians desiring any back numbers can obtain the same upon request.

The United States Civil Service Commission announces an examination on February 17-18, 1909, to secure eligibles from which to make certification to fill seven vacancies in the position of medical inspector, $2,000 per annum each, in the Philippine service, and vacancies requiring similar qualifications, as they may occur in that service, at salaries ranging from $1,200 to $1,800 per annum. Certain allowances for travel are made to district health inspectors, and in some of the hospital positions other allowances are made, depending upon the nature of the work. Applicants should at once apply to the United States Civil Service Commission, Washington, D. C.

S. DeWitt Clough, of Ravenswood, Chicago, has issued a little work called Backbone, a collection of short articles and quotations, all of the most optimistic character and, as the foreword says, are intended to serve as an antidote for the "blues" and a cure for "grouch."

The Abbott Alkaloidal Co. has established a laboratory for the examination of chemical and pathologic material and has issued a booklet entitled Scientific Laboratory Help in Diagnosis. This points out the value of the aid to be derived from such examinations and gives directions for obtaining and forwarding specimens. Such a laboratory is of value to men in small towns or rural districts, remote from the facilities which the larger cities furnish for this work.

H. L. Ambler, D. D. S., of this city, in his search for material for a History of Dentistry in Cleveland, which he is writing, met with the following items of interest in the old Cleveland Herald and kindly forwarded them to the Journal:

"Doct. I. Town has just rec'd and offers for sale, at the store lately occupied by Mr. Nathan Perry, a general assortment of Drugs and Medicines for ready pay. N. B.—A liberal discount made to physicians." (Jany. 1819.)

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"The Medical Society of the 19th District convened agreeable to notice, at G. Boughton's hotel in the village of Cleveland, Feb. 6, 1824. David Long, President." (Dr Long came here in 1810 and was the first physician to locate here.)

"The Medical Society appointed J. L. Conger for their prosecuting attorney." (May, 1826.)

"Notice. All persons who are indebted to me for a long time are hereby reminded that, unless payment is made very soon, their accounts will be left where costs will accrue. David Long." (May 5, 1826.)

A copy of the Canal Record of November, 1908, was also sent by Dr Ambler. It contains the health report, for November, of Colonel Gorgas, which indicates the remarkably good sanitary conditions upon the Isthmus and the low mortality rate. No yellow fever had occurred since May, 1906, and no case of smallpox for a whole year.

The Charity Hospital Medical Society met January 13. The following was the program: A Case of Tetanus with Recovery, L. A. Wheelock. The Recent Congress on Tuberculosis in Washington, J. H. Lowman.

Samuel G. Gant, of the New York Postgraduate Medical School, will be the guest of the Dermatological and Proctological Section of the Ohio State Medical Society at the meeting in Cincinnati in May. He will deliver an address upon Colopexy for the Relief of Otherwise Incurable Ptosis Causing Obstipation and Autointoxication. Bransford Lewis, of St. Louis, will also be a guest of this section and will deliver an address.

The Medical Department of Western Reserve University in 1898, announced that, beginning in October, 1901, the completion of the Junior year would be required for entrance. In the eight classes which have entered since 1901, an average of 86% of the matriculates have either held a bachelor's degree on entering or have obtained it at the end of the first medical year.

In May, 1908, the Faculty unanimously voted to recommend a further advance in entrance requirements to the point of requiring a degree for unconditional entrance, but to admit conditionally a man who had completed the Junior year in a standard college (conditioned on the degree being granted by the college from which he had come before his entering the Junior year in this Medical Department). In November, 1908, this vote was unanimously reaffirmed, and on December 17, 1908, the Board of Trustees of Western Reserve University voted that beginning with the academic year 1910-11 (i. e., in October, 1910) the following requirements for entrance to the Medical Department shall be in force:

I. *Time Requirement:* 1. The requirement for *unconditional* entrance to the Medical Department shall be graduation from an approved college or scientific school granting the degree of A. B., B. S., Ph. B., Litt. B., (or equivalent), following the completion of a course of at least three collegiate years, and including all the subject requirements enumerated under II.

2. *Conditional* entrance will be granted upon the completion of the work of the Junior year in the course of an approved college or scientific school, enforcing a four year course, leading to the degree of A. B., B. S., Ph. B., Litt. B., (or equivalent), including the subject requirements enumerated under II, conditioned upon the student obtaining a baccalaureate degree before he enters the third year in the Medical Department.

3. Students who have obtained their academic training otherwise than in institutions conferring the above degrees (for instance, at foreign institutions of collegiate standing), may be admitted on presenting evidence, by acceptable credentials, or by examination, showing that

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their education is fully equivalent to that implied by a degree from an approved college or scientific school, including the subjects enumerated under II.

II. *Subject Requirements:* All candidates for admission under I. must show by examinations, or by acceptable credentials, that they possess such knowledge of Inorganic Chemistry, Physics, Biology and Latin, as may be obtained by satisfactory completion of the following courses:

A. Inorganic Chemistry, including Qualitative Analysis, as represented by a course containing at least five actual hours per week through one collegiate year, of which at least one-third shall be laboratory work.

B. Physics as represented by a course of at least three actual hours per week for one-half collegiate year, of which at least one-third shall be laboratory work.

C. Biology (Botany or Zoology or a combination of these), as represented by a course of at least three actual hours per week for one-half collegiate year, of which at least one-third shall be laboratory work.

D. Latin of at least one year's work, as represented by Latin grammar and the reading of four books of Caesar, or equivalent.

Conditional entrance, however, may be granted to a student deficient in all of one of the requirements A. B, C and D, or in part of any two of them; but all such conditions shall be removed before the student shall be allowed to enter the second year class as a regular student.

Deaths

D. W. Callahan, Gustavus, died January 13.

E. C. Hartrum, Rocky Fork, died December 21.

Thos. E. Woods, Findlay, died January 2, aged 68.

M. W. Suter, Rocky Fork, died January 9, aged 72.

Samuel Hart, Marietta, died December 21, aged 78.

Loren P. Lee, Rutland, died December 30, aged 55.

Jas. H. Ward, Columbus, died December 25, aged 36.

Morris May, Cincinnati, died December 27, aged 37.

F. S. Wagenhals, Columbus, died January 9, aged 59.

Thos. D. Sharkey, Hamilton, died January 2, aged 42.

Arthur W. King, Cleveland, died January 8, aged 26.

Ira A. Landis, Lightsville, died December 13, aged 41.

Luther Schofield, Maumee, died December 29, aged 48.

Chas. W. Eddy, Marietta, died December 28, aged 55.

L. L. Loomis, Pemberville, died December 28, aged 79.

E. C. Fausett, Olmsted Falls, died December 20, aged 53.

Ed. C. Lewis, New Philadelphia, died January 3, aged 64.

W. S. Anderson, Newtonsville, died December 28, aged 80.

Geo. W. Sanor, formerly of Columbiana county, died November 18, aged 73.

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The Cleveland Medical Journal

VOL VIII MARCH, 1909 No 3

Eighteen Months' Clinical Experience with the Use of Koch's Tuberculin for the Treatment of Tuberculosis of Bones and Joints

By WALTER G. STERN, Cleveland

Lecturer on Orthopedic Surgery at the Cleveland College of Physicians and Surgeons; Orthopedic Surgeon to the Mount Sinai Hospital, etc.

To keep the purpose of this paper clearly in mind, so that there can be no misunderstanding as to the standpoint I am taking, I wish to emphasize this one point, namely, that in advocating the use of tuberculin in the *treatment* of surgical tuberculosis I am *not* advocating, in its use alone, a specific cure for each and every or even any given case of tuberculosis. It has been my pleasant experience to find that in tuberculin I have a most valuable aid to the other recognized forms of treatment and as such I offer it here tonight for your consideration.

In surgical tuberculosis there are three radically different modes of treatment still in vogue, and the importance one attaches to the use of tuberculin depends upon which of the three one chooses to follow.

(1) If one believes with some of the leading dermatologists —for instance Lange of Vienna—or with the majority of the members of the First International Congress of Surgeons, held at Brussels in 1905, that surgical tuberculosis is purely a local infection, or as Bardenheuer has put it "a local new growth," then the only rational treatment would be the total extirpation or amputation of the part affected. The case ought then to be cured when the wounds are healed; provided only the operation has been far-reaching enough, as in a case of cancer of the breast. Bardenheuer, for instance, in his latest proclamation on the subject (Zeit. f. Chir., Bd. 85, H. I., p. 1), demands the

Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, February 5, 1909

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immediate extracapsular atypical total resection of all cases of tuberculosis of the elbow, knee and hip joints, especially in children: a standpoint even more radical than the discredited operations of the nineties. To such a one the subject of tuberculin can be of no vital interest. The fallacy of this view I have already demonstrated to this Society.

(2) If one, however, follows the teachings of Halstead that no case of surgical tuberculosis can be considered cured after merely operating upon it and that each and every case should undergo after operation a course of after-treatment almost as rigid as that proposed for pulmonary tuberculosis; or

(3) If one believes with Hoffa that all cases of bone and joint tuberculosis below the age of 20, and all favorable cases above this age, should be treated conservatively, unless there arises some especial indication for surgical intervention, then the ways and means of such a conservative regime are of the most vital importance. As a part of the latter the use of tuberculin as prepared by Koch and given in most minute doses has stood out in the boldest relief in the past few years.

The method of using tuberculin followed by me has been the one so ably advocated by Trudeau. Trudeau like Wright begins with minute doses of Koch's tuberculin 1/10000 to 1/1000 of a milligram and takes, as the guide for the size of the dose, the interval between the doses and the increase in the amount of the dosage, every discoverable objective and subjective symptom of the disease. It is a purely *clinical* method. His dictum like Wright's is to avoid all reactions of any kind. "The treatment of tuberculosis by tuberculin is based on the principles of artificial immunization." This is rather a complex process to say the least and is at best imperfectly understood as yet. Wright's method takes for its sole guide for dosage, interval and increase only *one* of the many known factors of immunity (antibodies, agglutinins, bacteriolysins, opsonins, etc.), namely, the opsonic power of the blood as revealed by his method of determining it. The clinical method of Trudeau takes for its guide the clinical manifestations of the disease and the effect of the injections upon the patient's condition and symptoms. Wright, or at least some of his scholars are wont to say that "a patient can be at his worst when clinically he is at his best and highest," because at that particular time his opsonic index may be fluctuating and fall below the normal. To this I can in no

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way ascribe nor will the clinical methods of examination, diagnosis and deduction ever be entirely supplanted by purely routine laboratory methods. A familiar example of the same problem came up in the question of appendicitis "which should be the more reliable indication for operation, the physical condition of the patient or the presence or absence or variation of the leukocytosis?" But a more vital point *practically is the necessity for the constant daily* determination and charting of the patient's opsonic index. While this is immensely practical in acute diseases, although it is well known that the technic is exceedingly difficult and full of pitfalls for error—practical, I repeat, in acute cases like acne or furunculosis in which at the most the treatment will last but a few weeks, in tuberculosis of the bones and joints, which one sees in the ordinary orthopedic practice, it would have to be carried out daily for a year or more, necessitating the stay of the patient in a hospital or sanatorium or the daily visits of either the patient to the laboratory or the laboratory expert to the patient. Any break in the daily determination of the opsonic index during this long interval converts the *laboratory method* for the time being into the *clinical method.* To say nothing of the cost, the laboratory method is usually impossible of being carried out successfully in general practice except in the rich or leisure classes amongst whom such diseases are extremely rare. Then, too, not all authorities are in agreement as to the value of Wright's opsonic method for the control of the injection of tuberculin in orthopedic surgery. Nutt and Hastings in the *American Journal of Orthopedic Surgery,* August, 1908, declare the clinical method to be much more accurate than the control of the opsonic index, and advise against its use. Oglivey in the same *Journal,* although he ascribes great diagnostic and prognostic value to the opsonic index, says it is not essential to successful treatment with tuberculin. All are in accord that the clinical improvement goes hand in hand with a permanent rise in the opsonic index and *vice versa.* So the question boils itself down to the old one of "the greatest good to the greatest number." Trudeau's method fills the essential requirements and I have adopted it as my routine method. It should be understood that Trudeau advises the clinical method only in the cure of tuberculosis. He is silent as to the other bacterins and so am I, for I have never used them and never will in like manner. I am not decrying the absolute value of Wright's opsonic method but only its *practicable applicability* in *this class of cases.* Both

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clinical and laboratory methods are in perfect accord as to the efficacy of minute doses and the danger of overdosage.

My own method of using tuberculin is as follows: If the patient shows any signs of septic (tuberculous) absorption he is put to bed with extension or other fixation of the affected parts and given a rigid course of the modern antituberculous measures, as are all my patients at all times. Surgical intervention is to be abstained from now as always except when especially indicated. As soon as all unfavorable clinical signs have subsided the part is fixed, preferably in a plaster cast or by other suitable orthopedic measures, and the treatment with tuberculin begun. If the case presents in the beginning no unfavorable clinical signs the fixation, antituberculous regime and tuberculin treatment are begun at once.

The tuberculin I use is made up as follows: 0.2 c. c. of Koch's bacillary emulsion as put out under Koch's own seal by the firm of Meister, Lucius and Brüning of Hoechst A/M, Germany, which contains five milligrams of pure tuberculin per c. c., is taken up in a sterile graduated pipette and diluted with 9.8 c. c. of sterile salt solution to which one-half percent trikresol has been added as a preservative. This gives me a dilution in which each c. c. contains 1/10 milligrams of tuberculin and which—using a homeopathic phrase—I call the first dilution, 1^x. One c. c. of the latter is again diluted with 9 c. c. salt solution to make the second dilution 2^x containing 1/100 milligrams tuberculin per c. c. A final dilution of 1 c. c. of 2^x with 9 c. c. salt solution gives 3^x which has only 1/1000 milligrams of tuberculin per c. c. These solutions are preserved in sterile glass ampullae which are sealed in the blowpipe and can be opened when wanted and always found sterile and active.

0.2 c. c. Koch's bacillary emulsion—1 milligram tuberculin.

0.2 c. c. of B. E.	diluted with	9.8 c. c.	Salt Sol.	—1^x or 1/10	milligrams	tuberculin	per c. c.				
1.0 c. c. of 1^x	"	"	9.0 c. c.	"	"	—2^x or 1/100	"	"	"	"
1.0 c. c. of 2^x	"	"	9.0 c. c.	"	"	—3^x or 1/1000	"	"	"	"

When ready for treatment the patient is given an injection of 0.1 c. c. of the 3^x or 1/10,000 milligrams of bacillary emulsion with a long, delicate, sterile, asbestos-packed glass syringe (made by McIntosh of Boston), under the skin of the back between the shoulder blades. The pain is slight or none at all and the patient is sent home, put to bed and the temperature taken every two hours for two days. Should any fever, quickening of the pulse, nausea, malaise or lassitude develop at any time, it is quite clear that our dose has been too large. Personally I do

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not remember ever having a reaction from these small doses in my class of cases, although Dr Maschke told me about a year ago that he got a reaction in a case of pulmonary tuberculosis in a child with 1 c. c. of 3^x or 1/1000 of a milligram. After the second day the patient gets up and is busied following out a rigid fresh air, forced feeding, antituberculous regime. Each week thereafter for several weeks I repeat the *same* dose, and should no unfavorable clinical developments ensue, the dose is cautiously raised by 1/10 c. c. each week until I am giving 1 c. c. of the 3^x. I then use the 2^x which is 1/100 milligrams per c. c. and by injecting 1/10 c. c. of this I give the same dose as when I gave 1 c. c. of 3^x only in a more concentrated form. The dosage is now constantly increased by 1/10 c. c. every third week in the absence of all fever or adverse clinical signs until 1 c. c. of the 2^x dilution or 1/100 mg. is reached. After a few weeks of the use of 1 c. c. of the 2^x the treatment is discontinued for a few weeks and then begun all over again. This treatment, as well as all regularly indicated orthopedic measures, is kept up until all clinical evidences of the disease have disappeared. Surgical intervention for the removal of sequestra, opening of abscesses, injection of fistulae, etc., do not interfere either with the tuberculin or the fresh air treatment.

The average duration of the treatment of my cases has been from nine to 12 months.

In no case (except one) have the usual antituberculous measures of the orthodox conservative treatment, which I expounded before this Society just two years ago (February, 1907), been omitted for the purpose of "trying out" the tuberculin to see what it might accomplish alone. While this may have been the practice at the St. Mary's Hospital, London, and elsewhere, I would condemn it as reprehensible—to use a very mild Rooseveltian expression—for as physicians our duty is not to experiment upon a human being afflicted with such a dread infection as tuberculosis but rather to use *every measure* for good at our command to save the sufferer from his fate. Yet one such experiment was unconsciously and unwittingly made by me in the case of Dora B., aged 14, who for two years had been suffering from pain and disability in the left leg and knee, emaciation, loss of appetite, periods of inability to walk, limp and apparent lengthening of the leg. She presented a typical picture of a mild tuberculosis of the hip joint with fixation, limitation of motion in all directions, pain, deformity, and

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apparent lengthening, Von Pirquet's reaction positive. The hip was put up in a plaster cast and antituberculous treatment begun in June, 1908. She was advised as to her forced diet, etc., and for fresh air was recommended to one of the "convalescent homes" in the country near Cleveland. Tuberculin was given as outlined and in six months she has gained 37 pounds in weight, and at the present writing even more. She still is wearing a cast which is to be removed for good on February 19. At the last examination, December 19, 1908, it was evident that fixation was no longer necessary but the cast was reapplied for safety during the slippery winter months. While commenting on the efficacy of the treatment in her case, at my clinic at the Mount Sinai Hospital, on this last date, I was careful to state that I ascribed her wonderful improvement in weight and health, and in the local conditions, not merely to the tuberculin treatment but in equal measure to the forced feeding and particularly the fresh air regime at the convalescent cottage. When I got through she shyly corrected me, telling me that she was unable to follow my directions as to milk, eggs, meat, butter, etc., because they were too poor to buy the same and I know too proud to beg. "But," I said, "you received good nourishing food and were out of doors all the time while in the country," to which she replied with tears that she had been refused admission to the convalescent cottage because she was too old (!) and had spent the entire hot summer in absolutely the worst part of our city, where the air is constantly charged with dust, dirt, soot, and especially the finely divided red iron-ore dust from the Emma blast furnace down in the flats. To what shall we ascribe this wonderful improvement, this cure? To fresh air? She didn't get any. To forced feeding? This was conspicuous only by its absence, although I don't mean that she didn't get her three regular meals a day. To the plaster cast? Fixation alone helped, but I am truly assured that her improvement was due to the increase of her specific resistance due to the injections of the tuberculin.

My records show me that in 18 months I have treated 37 cases of bone and joint tuberculosis with Koch's tuberculin as an adjuvant to the usual orthopedic and fresh air regime upon which I have always strongly insisted at various times and places. These were divided as follows: Tuberculosis of the glands of neck, 1; parotid gland, 1 (all reactions positive); tuberculosis of spine, 8; tuberculosis of rib, 8; tuberculosis of elbow, 2; tuberculosis of wrist, 2; tuberculosis of finger, 1; tuberculosis of

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sacroiliac joint, 2; tuberculosis of hip joint, 15; tuberculosis of knee, 3; tuberculosis of ankle, 1.

With one exception these cases have gone on to satisfactory improvement or convalescence, although it is altogether too early (the three-year period has not yet elapsed) to speak of positive permanent cures. Complications have not arisen or, when threatened or present before the treatment was begun, have all been satisfactorily avoided or suppressed. The gain in weight and strength and freedom from pain, etc., have been constant and striking features. Many patients have been discharged as provisional cures but are still returning quarterly for observation; while those still under treatment have done and are doing far better than my cases did on precisely the same orthopedic and antituberculous treatment before I began the use of tuberculin.

I shall not bore you with a resume of the history of each and every one of the 37 cases, but rather sketch the features of a few cases which I think would not and could not have done so well without its use. Outside of the case of Dora B. already mentioned my most startling result has been the following one:

D. V., aged 26, is the mother of two children. After the birth of her first child eight years ago she developed a double pleurisy with effusion which was tapped repeatedly before it was cured. It was diagnosed as tuberculous. After the birth of the second child she complained for one year of constant pain in the small of her back which was finally diagnosed as Pott's disease and treated with removable plaster jackets. She steadily grew worse, coughed, had night-sweats, became very hoarse, so that she could not talk much above a whisper, had fever, and lost in all over 50 pounds in weight. Ten months ago her condition could be summed up as follows: A kyphosis from Pott's disease of the lumbar vertebrae; the bases of both lungs flat with no respiratory excursion; both apices infiltrated, larynx red and infiltrated. She was immediately given a Calot's jacket in hyperextension after the principles laid down by Lovett before this Society a few months ago, with a rigid antituberculous regime and rest in bed out of doors. After a few weeks the fever subsided and I began injections of tuberculin in 1/10000 mg. and carefully ran it up to 1/100 mg. After 10 months her voice and the infiltration of the larynx have cleared up entirely, she no longer coughs, has no rales at the apices, the dulness here as at the bases has almost entirely cleared up (January 26, 1908). The lesion of the lumbar vertebrae is painless and symptomless. She has gained over 50 pounds in weight, has no fever, has a voracious appetite, sleeps regularly and seems to be making a rapid and uninterrupted recovery.

Lucy T., aged six, has had sacroiliac disease for two years with an abscess which threatened to invade the left hip-joint. A thin, emaciated sickly child. Treatment, plaster cast to hip and back, fresh air (?) of the kind they enjoy at the Haymarket, forced feeding and tuberculin for past 18 months. Abscess has disappeared, she has gained in weight and strength, there are no active symptoms of any disease in sacroiliac joint and she goes to school daily this winter.

Sam R., aged nine, has had tuberculosis of hip for past five years. Has done very poorly up to 18 months ago on a rigid orthopedic and fresh air regime. After spending the entire summer of 1907 at a "con-

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valescent home" he became unable to walk on account of pain. A large abscess developed, but did not break, and a flexion-adduction contracture took place. In October, 1907, I began the use of tuberculin and kept up the other treatment as before. The abscess which was untouched disappeared in about 10 months, the pain and contracture gradually subsided, he has gained in weight, his appetite is good, and he can now walk with a short plaster spica reaching only to the knee, and without the use of canes or crutches. He is still under treatment.

B., male, aged 34, had spinal tuberculosis with kyphosis in the dorsal region for past 10 years. Two years ago had spasms of the muscles and paresthesia of both legs, a flexion contracture of the right hip and a psoas abscess. Case is complicated with an undoubted tuberculous caries of two teeth, the alveolar process and the left maxillary articulation which is ankylosed and gives an assymetry of the face and mouth. There is also a considerable infiltration of the right upper lobe of the lung, severe chronic bronchitis showing a mixed infection, but with no tubercle bacilli in the sputum, and a severe chronic laryngitis, which a competent laryngologist did not think was tuberculous. Although it was necessary to allow him to continue daily at his desk, he was an architectural engineer, he was given forced feeding, fresh air and a hyperextension brace, together with tuberculin injected every 14 days only. He has *gained* in 18 months about 7½ pounds in weight, the spinal nerve symptoms and abscess have subsided until they are barely discoverable, the cough and bronchitis have disappeared, spine is almost straight and symptomless, lungs have cleared up until only slight dulness of right apex is demonstrable, there is no fever, appetite and sleep good. While I do not pretend to be reporting a cure or anything that smacks of a cure in this case, yet I feel sure that without the aid of tuberculin he would not even have been able to hold his own, much less to obtain any improvement.

I have had a large number of cases, especially in children, of which the following will stand for an example:

Alma L., aged 12, has a tuberculous family history. She was given cod liver oil all the winter before I saw her because she lost in weight and was thin. The summer before a neighbor noticed and remarked that she "seemed to walk kind of funny like" but nothing was done medically until she fell down a flight of stairs in September, 1907. She did not complain until after a few days had elapsed, when she began for the first time to have pain, limped, and the leg seemed at times to be distinctly longer than the other. The attending physician, not learning anything of her past history, despite close questioning, except that she had fallen down stairs, called me in consultation to explain the tangled symptoms of an inch of apparent lengthening in the hip of a child with no dislocation, no fracture, no swelling, etc., after a fall down a flight of stairs. There was, however, besides the apparent lengthening, slight limitation of motion in all directions when compared with the healthy side, pain when motion was excessive, slight flexion with lumbar lordosis and slight fever. A diagnosis of tuberculosis of the hip was made and confirmed by the tuberculin reaction, upon which the true family and personal history was first revealed. The treatment consisted of ambulatory plaster cast, forced feeding, tuberculin, etc., for 10 months, after which she was discharged provisionally cured with a gain of 14 pounds in weight. There is perfect motion in the affected hip. She is now perfectly well, 18 months after treatment was begun.

The only case which I have had under my care which did not respond to treatment, but for which I console myself with the fact that under the same moral and physical conditions no other form of treatment would possibly have accomplished as much, is that of Sara G., aged 10. The family history is bad in every respect morally as well as physically and to the former I ascribe as much of my ill success as to the latter. Father

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died of pulmonary tuberculosis, and one cousin and one brother are at present under treatment by various surgeons—they have also been under my care for various periods—for tuberculosis of the knee joint. The girl, although not living at home, exhibits the moral characteristics of the rest of the family. Although the mother knew her daughter had knee joint disease and that I was treating her, she denied that there ever were any cases of tuberculosis in the family when she brought her son to my clinic under an assumed name to avoid the payment of a fee. Confronted with the truth she exhibited all the characteristics of a genuine member of the "Ananias Club" and tried to lie out of the whole business in a brazen faced manner and finally pleaded ignorance of everything, even her right name and address. At a later date while trying to cheat the hospital out of the payment for a brace for her son she unwittingly brought in the Thomas knee brace made for her nephew at the Hospital for Ruptured and Crippled in New York. When I demanded to see him she claimed he had already returned to New York and left his brace behind for her son, when an investigation made on the spot revealed him to be at her house in bed waiting for his brace. So much for the moral qualities of her living parent. Two of the patient's brothers and sisters have been before the authorities as juvenile delinquents for stealing and lying. The patient herself has a perverted mind, she is such a confirmed liar that it would almost seem as though she could not ever tell the truth. She steals and wantonly destroys the cherished possessions of others out of mere maliciousness, etc. This quality of mind has done more harm I verily believe than even her tuberculous family history, for to give her the usual antituberculous regime, to control any clinical symptoms, take her temperature regularly, etc., were all well nigh impossible.

I first saw her in February, 1907, after she had fallen down and severely injured her left knee, which showed all the signs of an acute inflammation. This slowly subsided and finally revealed its true tuberculous nature, flexion to a right angle, globular swelling, typical tumor albus, etc. Careful inquiry among her playmates revealed the history that she had had some trouble with her knee for six months previous to her fall, all of which she however denied. Tuberculin test was positive. She was treated with an extension plaster cast and as much of a fresh air, forced feeding regime as we were able to give her. The fever subsided, the knee straightened out, the pain and swelling disappeared, she gained in weight and seemed to be making an uneventful recovery. In December, 1907, I applied a knee brace instead of the cast, which she wore until the end of January, 1908, when the brace was sent to me for repairs. Seeing from its condition that some serious accident must have occurred I hasten to her to find her in high fever, with cough and fine rales over the entire chest, knee enlarged, swollen, painful and flexed and the typical pinched and waxen look of the seriously ill patient with tuberculosis. For several days she denied all injury and explained the breaking of the brace in various ways but afterwards broke down and confessed that she had fallen down a flight of 12 concrete steps and landed in a heap at the bottom with the knee doubled up under her and the brace broken. All this had happened a number of days before. She was put to bed in extension and as soon as the fever subsided, which was in the middle of February, 1908, treatment with tuberculin was begun. The lungs have cleared up somewhat but a dulness with suspicious expiratory respiration and a few rales still remain in the right apex. She had lost at least 10 pounds in weight from this last experience. In March, 1908, it was evident that a large abscess had formed in the lower part of the thigh which I did not open, in the hope that it, like many others, would disappear under the use of the tuberculin. A cast was applied reaching from the sole well up to the groin and gluteal region and she was allowed to get out in the air. In September, 1908, she suddenly began to void her urine and even her feces in bed out of sheer laziness, refusing to go to the toilet, and soiling her cast fearfully. Braces or extension were of course out of the question. Sometime in November or December, 1908, the abscess broke through the

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skin of the popliteal space I injected the fistula with bismuth paste and soon had it healed, reapplying the cast this time with a window in the popliteal space. At present she is on her "good behavior" and does not soil her cast much. Her pulmonary condition is about the same, while the knee itself is straight, painless and very little swollen. I do not yet despair of curing her by the means indicated without resection or amputation, but at the present writing her case must be reported as *the one* and only one not doing better with the use of tuberculin than could have been expected. The use of the tuberculin without the control of the opsonic index cannot be blamed for the unfavorable outcome in this case, as some exponents of Wright's theories may take occasion to say. The tragedy of the pulmonary involvement and relighting of the process in the knee occurred before she was treated with tuberculin, not after.

Conclusions: Koch's tuberculin, although a terrible agent for harm when used indiscriminately in large doses, is a powerful agent for good when used in small doses either by the opsonic method of Wright or the clinical method of Trudeau.

The laboratory method of Wright is still too complex, intricate and costly, to be able to diagnose, treat for from nine to 18 months, and bring to a cure the general run of tuberculous cases which one sees in orthopedic practice. While not decrying its absolute value I would claim that the greatest good to the greatest number is obtained by following the clinical method of Trudeau in treating bone and joint tuberculosis.

Notwithstanding the statements of the laboratory men to the contrary, *no harm* can come and a great deal of good can follow the proper use of tuberculin *without* the control of the opsonic index.

No matter which method is followed, tuberculin must *not* be used *alone* for treatment but must invariably be a part of a rigid medical and surgical antituberculous regime.

When so used it has proved in my hands an invaluable aid in the treatment. My cases have done better with it than they would have done without its use. They have responded quicker and have been discharged in less average time than ever before. Complications have either been avoided or when present have invariably (with one exception) subsided on its continued exhibition. This has been especially noticeable in my adult or older cases, in some of whom the gain in weight and strength has been truly remarkable.

Tuberculin is not a cure-all, but so convinced am I of its efficacy and value that I will continue to employ it in the future in all cases of tuberculous bone and joint disease unless its use should be specially contraindicated.

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Gastric Ulcer, Some Surgical Questions to be Considered in its Treatment

By M. J. LICHTY, M. D., Cleveland

The aim of this brief paper is rather for the purpose of soliciting information and opinions than of expressing any. Each of the four cases to be reported developed in the course of treatment one or more features which made me question seriously whether to advise more or less radical measures medically or surgically: and whether the certain procedures adopted in the course of treatment, no matter whether the case terminated favorably or fatally, were most rational. In other words the four cases presented certain questions which I believe physicians and surgeons should continue to discuss frankly and freely.

A few points upon which the surgeon and internist have now practically and perhaps wisely agreed in the treatment of ulcer of the stomach are such as these:

MEDICAL

1. Simple ulcer without any history of former attacks should be treated first medically.
2. Ulcers with only a slight amount of hemorrhage should be treated medically for at least a reasonable amount of time.
3. One or two attacks of copious hemorrhage are perhaps more safely treated medically.
4. Ulcers resulting in only a slight pyloric stenosis and dilatation of the stomach are treated most satisfactorily medically.

SURGICAL

1. Long continued simple ulcer extending over a period of some weeks or months when not yielding to medical treatment should be treated surgically.
2. Frequent recurrences of ulcer requires surgery.
3. Very marked pyloric stricture with dilatation requires surgery.
4. Perforation usually and copious hemorrhage frequently require surgery.

But aside from these questions there are others upon which, I believe, opinions of surgeons and internists differ and conclusions are not so definite—as for instance:

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1. Is the case with a fairly positive history of pre-existing ulcer, and with now but a slight pyloric stenosis with considerable atony and dilatation, a medical or surgical condition?

2. Is any operation at all justifiable in case of chronic ulcer or marked stricture when the patient is afflicted with some other organic lesion?

3. In case of gastro-enterostomy or gastrectomy should distal ulcers, not within the seat of operation, be excised or left alone?

4. How long should medical treatment be continued for simple primary or chronic relapsing ulcer without any complications, before the surgeon should interfere?

These four questions, perhaps less conclusively settled or agreed upon by both physician and surgeon, are surely not the only mooted questions, but they have been impressed upon me by the four cases to be reported, and this is the apology for this paper.

CASE I: A man, aged 40, was admitted to St. Luke's Hospital September 1, 1908. He was a stone mason by trade. There was no history of venereal disease. He drank some beer at intervals for years, but not excessively. He took no whiskey. Three years previously while at work he was accidentally struck over the stomach and there had been some tenderness there at times since. Beyond that there was no history of gastric ulcer. Four weeks previous to admission he developed rather suddenly a pain in the stomach after eating. It was most severe one hour after meals and was frequently relieved by vomiting. No blood was noticed. He was advised to use whiskey for the pain and said that a few ounces well diluted with water sometimes relieved the pain. On account of weakness, pain and loss of weight he went to the hospital.

He had epigastric tenderness and muscular rigidity. The gastric secretions were normal (no hyperacidity) and only occult blood was present. There was no hematemesis. Occult blood was found in the stools most constantly (only absent during a few days of starvation). He rapidly went from a supposedly mild, favorable condition to a severe unfavorable one, and died of perforation at the end of a month.

Operation was considered unnecessary at the beginning of treatment. It was postponed a few weeks later, and just before and after symptoms of perforation set in, the case was considered a hopeless one for operation. Every medical measure with which I was familiar and in which I had confidence was tried. No food by mouth for six or seven days and rectal feeding were tried. During this period the patient several times vomited small amounts of light red blood.

The Lenhardt diet treatment was tried faithfully after the end of a week but failed. Medical measures, such as big doses of bismuth, silver nitrate, belladonna and adrenalin, failed to check the hemorrhage. Aside from an occasional small hypodermic of morphia nothing save orthoform in five to eight grain doses by mouth would relieve his pain. Neither heat nor cold over the abdomen gave relief. There was a leukocytosis of 16,000 to 17,000 from beginning to end.

The hemoglobin of 85% and red corpuscles of 6,500,000 at the beginning were reduced to 35% and 2,400,000 a few days before death. At the end of the second week, with a limited amount of food by mouth and continued rectal feeding (but an increasing anemia), the prognosis seemed

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most favorable symptomatically and blood was not so easily found in the feces. When perforation occurred he was so weak that both physician and surgeon considered operation useless and cruel. At postmortem, a perforation the size of a quarter of a dollar was found on the posterior wall, in the center of the scar of an old ulcer which was about an inch wide and three inches long, extending over the lesser curvature from the anterior to the posterior wall. The scar seemed to be very firm and old, and, no doubt, was present long before the patient went to the hospital.

QUESTIONS

1. Should he have been operated upon in the beginning as soon as the diagnosis was made—in spite of no definite history of former ulcer, hematemesis, or deficient motor power?

2. Should he have been operated upon after two weeks when the case was most favorable?

3. Should he have been subjected to surgical treatment when perforation occurred in spite of extreme weakness, grave anemia and poor pulse?

In this individual case operation could not have resulted worse. But in a series of such cases would surgery at any time in all of them be the best treatment?

CASE II: A nurse, aged 26, had a rather mild and atypical or uncertain attack of typhoid in October and November, 1907. No history of chronic gastritis or former ulcer could be secured. During her convalescence from typhoid she developed symptoms of gastric ulcer. The several gastric analyses and examination of feces showed blood. After four to six weeks of medical treatment, with unfavorable results, operation was advised with hesitation. There was but little pyloric stenosis or dilatation of the stomach. A gastro-enterostomy was done as quickly as possible and a large opening made. One ulcer was excised in the anastomosis. Just before closing the abdomen another large ulcer, with a base which appeared as though it might have perforated very soon, was discovered but was left alone.

Convalescence was tedious and extended over months and the patient's life was in jeopardy for several weeks.

For a few weeks after operation there was much pain and considerable vomiting, some of which was bloody. The patient is perfectly well now.

QUESTIONS

1. Was the operation done at the right time and was it really necessary?

2. Should the second ulcer have been excised?

3. Considering the danger and shock of the operation and the very alarming and tedious postoperative condition, would medical or surgical treatment give the most favorable results in a series of such cases?

CASE III: An Italian, aged 21, came under observation in August, 1906. He gave a history of distress after meals which had been growing worse for a whole year previous. Occasionally after a heavy meal there was sharp pain and nausea which were relieved by vomiting. No blood was noticed in the vomitus. He also had a cough, was losing weight, and had night sweats. The temperature and pulse were normal. There were areas of impaired resonance at the apex of each lung with small moist

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rales. The fingers were decidedly clubbed. No tubercle bacilli could be found in the sputum. There was tenderness and rigidity over the epigastrium and gall-bladder. The stomach was dilated only to the umbilicus. There was then no delayed motor power and the test meal showed a slight hyperacidity and no blood. The patient weighed 110.

A single prescription of medicine and careful diet gave great relief. He gained five pounds in two weeks. Then he was advised to work on a farm for the benefit of his pulmonary lesion. Improvement followed for six months and then the stomach again grew worse. A year ago he was admitted to Charity Hospital, where a diagnosis of moderate pyloric stenosis was evidently made from his history of the treatment there, but operation was not advised on account of his pulmonary lesion. In August, 1908, he was admitted to St. Luke's Hospital. He was much emaciated, coughing and vomiting, but there was no hematemesis. The lungs showed more consolidation and bronchial breathing. There were only few small moist rales in the chest and no tubercle bacilli. The temperature was quite regular but there was a positive reaction to tuberculin. There was a tight stricture of the pylorus, retention of gastric contents for 12 to 48 hours and much dilatation of the stomach. He was actually starving. Gastric analysis was practically normal and free from blood. In spite of his emaciation a gastro-enterostomy was advised and done. At operation a few small ulcers were found and a band of adhesions at the pyloric outlet seemed to invaginate the pylorus and cause all the obstruction. After operation the patient did only fairly well, and his stomach never accepted food satisfactorily. He, however, increased in weight for about one month. Then the cough grew worse and vomiting again returned. He died in November, 1908, 10 weeks after operation. No postmortem was held. I had a similar failure with a tuberculous patient a few years before.

QUESTIONS

1. Should patients with surgical conditions of the stomach be operated upon when other serious organic trouble is present?

2. Was not the gastro-enterostomy injurious after the pylorus was perhaps made patulous by relieving the band of adhesions?

3. Is it a rule without exception, as is suggested by some surgeons, that gastro-enterostomy gives the more favorable results as the pyloric stricture is the more absolute? And if so why not close the pylorus whenever doing a gastro-enterostomy?

CASE IV: Mrs. H., aged 41, became a patient at St. Luke's in September, 1908. She gave a history of lues and frequent alcoholic debauches with attacks of gastritis. During the past year there was much loss in weight. She had constant pain over the precordium and occasional attacks of vomiting even after the greatest care in selecting food. Her maximum weight was 136, 15 years before. Three years ago she weighed 109, and on the date of admission she weighed 81. She was not anemic but had a leukocytosis of 16,000. The gastric secretions were practically normal, and no blood was found at any time in the stomach contents or stools. There was tenderness and rigidity over the ensiform region. The lower border of the stomach extended a little below the umbilicus. Particles of meat and portions of prune or raisin skins were quite frequently discovered in the vomitus or by lavage 24 to 48 hours after the ingestion of a meal containing such food. Medical treatment and careful feeding by mouth and rectum improved the patient's condition slightly. The weight increased five pounds. She left the hospital at the end of a month, but, dissatisfied with her condition, she returned a few weeks later, for

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operation. When the surgeon did a gastro-enterostomy he found scars of ulcers and a very tight pyloric stricture with pronounced dilation of the stomach. Otherwise the stomach was in good condition. Pylorectomy was considered at the time of operation, but as the patient was very weak and as a gastro-enterostomy could be done with greater haste and safety it was the operation selected. The patient made a very rapid and pleasing recovery. There was but little shock and not a single annoying postoperative symptom. She took house diet at the end of a month and gained 30 pounds at the end of nine weeks. This was a typical case of most pronounced pyloric stenosis, and while the results of the gastro-enterostomy were most satisfactory, one might, after all, question whether, in a series of such cases, gastro-enterostomy or pylorectomy should be the operation of choice.

I am aware that "any fool can ask more questions than a wise man can answer," but I am frank to say that some of the points in question in the course of treatment of these four cases were both interesting and of importance. Various answers to these questions can be found in the literature by different authorities.

1803 East 82d Street.

Blepharochalasis
Report of a Case of this Trophoneurosis, Involving also the Upper Lip

By W. B. LAFFER, M. D., Cleveland

Blepharochalasis (Erschlaffung der Lidhaut) was first described by E. Fuchs in the *Wiener klinische Wochenschrift,* February, 1896, p. 109. This condition has also been called dermatolysis palpebrarum by Aubert, and is sometimes wrongly named ptosis atonica.

Fuchs and Kaposi together had studied a case which was similar to a number of others that Fuchs had observed before, but this was the first to appear in the literature. It affected a girl 20 years old, both upper eyelids being involved. The lids presented a pale, swollen appearance as if they were filled with water. The swelling occurred once or twice weekly at first, but later the condition persisted.

Fuchs says the trouble affects only the upper lids and always both of them. It involves only the skin which becomes thin and inelastic with the veins dilated as in the cheeks of old people. The changes in the skin cause a crinkled, cigarette-paper-like appearance and the loss of elastic tissue reminds one of the atrophy of

Patient shown before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, February 5, 1909

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the skin seen in old people or in those with a severe cachexia, or in the skin of the striae found after pregnancy, ascites and anasarca.

There is no abnormal pigmentation and no sensory disturbance to pain, touch or temperature, but the changes in the skin are most pronounced between the eyebrow and the beginning of the tarsus. There is no true ptosis as the tarsus is not affected but simply a sagging down of the skin over the eyelashes due to its relaxed, inelastic condition and its loose attachment to the tarsus.

In severe cases the skin may be loose over the entire upper lid and changes in the skin may extend up on the forehead. The condition affects chiefly the young and middle aged of both sexes, and perhaps more frequently in boys.

One of Fuchs' cases occurred after meningitis which was accompanied by a great deal of edema of the eyelids. After the disappearance of the edema the skin presented the characteristic inelastic atrophic appearance.

In another of Fuchs' cases the condition affected a young man. It followed the blowing of a horn and recurred at intervals. In most of his cases Fuchs could find no cause, such as previous swelling or edema. Sometimes the skin presents a slightly reddened appearance as in a case reported by Arlt.

In the ptosis amyotrophica, which is a true ptosis seen in old women, the skin of the lids presents a smiliar appearance. It is probable that in some cases it is closely related to, or follows, the condition known as angioneurotic edema, but most students of the subject believe that it is a trophoneurosis.

The histologic examinations of the skin made by Fuchs and Fehr show a dilation of the superficial veins, marked atrophy of the skin and the papillae are much flattened or have disappeared. The subcutaneous tissue is loose, there is a great loss of elastic tissue, and a wide separation of that which remains, probably due to stretching.

Further observation of patients presenting this trouble may perhaps show that later there may occur an atrophy of the tarsus also.

Fehr gives an illustration of his case and says that Von Graefe operated upon one previous to Fuchs' publication.

Fuchs tried to relieve the condition by injecting under the skin alcohol and tincture of iodin to create a sclerosis, but without much success. He advises excision of an elliptical piece of

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the integument and suture of the edges of the wound. This has been done successfully by Von Graefe, Fuchs and Hirschberg, the patient presenting a perfectly normal appearance after the operation.

A review of the literature fails to show any case with involvement of the lip, such as my patient presents, but otherwise his condition is classical.

This patient, N. P., a Hebrew, aged 12 years, is a schoolboy.

Family History: Father and mother are living and well, and never had any symptoms comparable with that of the patient, except that both are inclined to be fat. He has three brothers and five sisters all very



Blepharochalasis involving also the upper lip in a boy aged 12.

healthy. One child died in infancy of convulsions. There is no history of neuropathic taint in the family, except that the mother has a slight nervousness of indefinite nature. There is no tuberculosis or other hereditary disease in the family.

Personal History: Patient has never had any severe illness, injury, or operation, and in fact up until the present trouble began he was a perfectly normal and healthy child. He gets along well in school and has passed his examinations every year.

Present Trouble: This began three years ago, and developed with a cold and sore throat. His physician at that time said it was a quinsy

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sore throat, but it lasted only three or four days and his mother thinks it was too mild to have been quinsy. With the onset of the sore throat both upper eyelids became swollen, and since then have remained, without any change whatsoever, the same as they are at present. The skin of the upper lids has a thin, stretched, lax, wrinkled appearance, causing the thin skin of the lids to droop so as to almost cover the eyelashes which are long and well developed. The skin is puffed out and hangs in bags over the eyes. The upper lip also became swollen at the same time, and has remained in the same condition ever since. The lip is particularly swollen on the buccal side so as to allow the mucous membrane to sag down over the teeth when he laughs. There has been no deviation in the intensity of the condition, except that the mother thinks that perhaps when he has a slight cold the swelling is more marked. In every other respect the patient's general health seems to be perfect. He has never had any spasms and his mother states that repeated examinations of the urine have failed to show anything abnormal.

Physical Examination: The boy is well developed, and well nourished, with a tendency to fatness. The fat which is distributed in a feminine manner, feels soft and almost edematous. The arms especially are of the feminine type. He is of fair size, and the muscular development is good. There is a marked pseudoedema of both upper eyelids, which is probably more correctly described as an extremely lax condition of the skin of the upper lids. This causes them to hang down in bags, almost hiding the eyelashes and making it difficult for him to see without bringing into use the occipitofrontalis muscle. The skin is very thin and finely wrinkled and not stretched as in edema. There seems to be also a fullness at the root of the nose and some epicanthus. The veins of the lids are dilated. The fullness extends up on the forehead above and between the eyebrows. The skin has somewhat the same edematous feeling on both cheeks below the eyes and over the inferior orbital ridge. Here the skin is not wrinkled but feels flabby. The upper lip is greatly thickened by an overdevelopment of the mucous membrane on the inner surface, causing a thick boggy swelling. There is no indication anywhere of edema, as the skin does not pit and is not thickened. The tongue also seems thickened and slightly cyanotic in appearance. Both tonsils seem to be enlarged, although the mother says that he has had them and the adenoid tissue removed. The thyroid gland shows slight hypertrophy involving both lobes and isthmus. No other glandular enlargement is found.

There seems to be a tendency to an acrocyanosis of the hands and wrists. The hands also show evidence of poor capillary circulation but the finger nails and hands appear normal otherwise. He "picks" his nails. No capillary pulse is visible. The hands are clammy and cold. The hair on the head seems of normal texture and growth; there is just a slight evidence of hair under the arms. The abdomen seems rather prominent and shows an accumulation of fat at the lower part such as is seen in fat women. The generative organs show nothing abnormal, puberty not having been attained. The breasts show the presence of an inverted nipple on the right side and a similar condition less marked on the left.

There is a tendency to a dorsal kyphosis of a diffuse order like that seen in stoop-shouldered people, but this is very slight.

The pupils are equally dilated, and react to light and accommodation. There is no nystagmus, and no edema of the sclera. The eye grounds are normal.

There is no cyanosis except on the hands, and no anemia. The patient appears to be full-blooded, the lips and ears being quite red.

The heart and lungs are normal. The spleen is palpable as well as the liver resistance.

Reflexes: Wrist, elbows, bicipital, and supinator longus reflexes are present, also the supraorbital reflex. The knee jerks are active, but hardly enough to be called exaggerated. The tendo-Achillis jerk is present. The Babinski, Gordon and Oppenheim signs are not present.

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There is no paralysis, atrophy, or sensory disturbance. The feet show no tendency to acrocyanosis like the hands. There is no edema over the tibia and, except for a flat foot, the feet show nothing abnormal. The urine is normal. The blood-pressure is increased to the finger test.

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Wright's Vaccine Therapy, with Report of Cases

By L. W. LADD, M. D., and H. C. RUSS, M. D., Cleveland

About six years ago, Wright, of London, first proposed a new treatment of certain infectious diseases by bacterial inoculation. This caused a great deal of discussion, but did not arouse widespread interest in America until three or four years later. The work reported here was undertaken with three ends in view: to test the efficiency of this treatment; to test the accuracy of Wright's method of ascertaining the opsonic index; and to determine whether or not the estimation of the index was necessary for carrying out the treatment.

Perhaps it might be well to say just a word about the original technic that Wright advocated. His whole theory rests upon the assumption that for phagocytosis the presence of blood serum—or at least a certain substance in the serum—is necessary. He proved this experimentally, and devised a method for measuring the quantity of this substance in the serum. This method he describes essentially as follows: A certain amount of blood, collected in sodium citrate solution to prevent coagulation, is centrifugalized until the red cells lie at the bottom of the tube and the majority of the leukocytes form a cream-like layer on top of them. The supernatant citrate solution, containing most of the plasma, is removed and the corpuscles washed with salt solution till *all* the plasma has been removed. Next he makes a suspension of the organism in question, in salt solution. Lastly, he secures some of the patient's serum. Proceeding to make the

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determination he measures equal volumes with a capillary pipette from each of these three solutions, viz: one volume of corpuscles from the leukocytic cream, an equal volume of the bacterial suspension, and an equal volume of the patient's serum. These three volumes are mixed thoroughly, and finally the whole amount is taken up into the pipette and the end of this sealed in the flame. The whole process is then repeated with the one difference of using *normal* serum in place of the patient's serum. The two pipettes are then incubated together for 15 minutes after which slide preparations are made from each. The number of bacteria contained in, say, 100 leukoyctes from each pipette are then counted under the microscope. The two preparations are identical, except that in one case the patient's serum is used and in the other a normal serum; therefore, the count establishes a direct ratio between the power the patient's serum has to cause phagocytosis and that of normal serum.

This technic and the results obtained have been called in question a great deal. *A priori*, a number of things suggest themselves as possible sources of error. First, measuring. The accuracy of drawing out the fine pipettes may be uncertain. So, heavy barometer tubing was employed and the pipettes standardized carefully with mercury under a magnifying lens. Secondly, the taking of equal volumes assumes a perfectly uniform suspension of both corpuscles and bacteria. In order to ensure this, the red and white corpuscles are thoroughly mixed again, after washing away the plasma, and probably a more even distribution of leukocytes thus obtained. In the case of the bacteria, the clumps are broken up by shaking the suspension with glass beads, like that in the mixing chamber of a blood-counting pipette, and the suspension then reduced to the requisite thinness by centrifugalization. Third, a further point in which it seemed as if the old technic might be at fault was, that while the contents of the pipette containing the normal serum was being mixed the other was lying at one side at room temperature. This would probably induce a certain amount of phagocytosis. More certainly, *after* incubation, phagocytosis would go on in one pipette, warm as it would be from the incubator, during the time the slide preparations were being made from the other pipette. To avoid this, a dish of cold water is provided into which the unused pipette is plunged while the other is being manipulated. Fourth, Wright himself mentions the difficulty encountered from the iso-agglutination of the red corpuscles by certain sera. It is hoped that this may

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be avoided by the use of unusually fine capillary pipettes for incubation, so that the serum will still come into fairly uniform contact with all the bacteria, even if a slight agglutination takes place. This has not yet been fully worked out. To sum up—this technic has differed from Wright's in the following particulars: (1) Adoption of measuring pipettes standardized by mercury; (2) Additional attention to the obtaining of uniform suspensions of corpuscles and bacteria; (3) Instantaneous stopping of incubation by cold water immersion when pipettes are removed from the incubator; (4) Fine capillary tubes for incubation.

Just a word as to results. There are 376 indices in this series. Of these, 48 must be disregarded as not having any check upon them. Of those that did have a check upon them, 224 checked up well, some to the third decimal place; 104 did not. These figures include indices done before the technic was modified, and of those more than 60% failed to check. In attempting to check the work, four separate determinations were made each time an index was done. There being two workers, each one made two determinations, thus checking both the other's results and his own. It was considered a check when the results tallied to within *one* in the first decimal place.

In the preparation of the vaccines themselves no changes have been made except to include glass beads in the bottle to facilitate even distribution of bacteria by shaking. A salt solution suspension of the bacteria is made and sterilized by heat—60°-65° C. for an hour. This vaccine is first standardized by mixing a minute volume of it with an equal volume of normal blood. From the mixture slide preparations are made, and 1000 red cells counted under the microscope aided by an Ehrlich's eyepiece. The number of bacteria met with during this counting is also noted. This establishes at once the ratio of bacteria to red blood-cells and as the number of red cells per c. c. is known the approximate strength of the vaccine—*i. e.*, the number of organisms it contains per c. c.—may be figured at once.

In the following report of cases it will be impossible at this time to give more than the briefest summary of our experiences with bacterial vaccines. In order of frequency, the microörganisms used were, Staphylococcus albus and aureus, gonococcus, Bacillus coli, and streptococci. We have not attempted to work with Bacillus tuberculosis on account of the difficulty in making even emulsions for the determination of the opsonic index and because of the time required before clinical improvement could

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be noted. For purposes of convenience the cases treated will be classified according to the microörganism isolated from the infectious processes.

Staphylococcus albus infections.

Acne: Altogether we have treated 28 cases of acne. These for the most part were not mild cases, but the patients had tried the various lotions, operative measures, etc., at the hands of various physicians, and had been sent as a last resort to receive vaccine treatment.

Varying results have been reported by different observers as regards the efficiency of staphylococcus vaccine in the treatment of this disease, and the consensus of opinion seems to be that while marked improvement often results, nevertheless the acne is not permanently cured.

This should have been expected when one realizes that the disease is, in all probability, primarily due to a bacillary infection and secondarily due to a staphylococcic infection. Unna, Gilchrist and others have called attention to the fact that in the earliest lesions of acne the acne bacillus is found, usually in pure culture. Later on, however, when pustulation occurs, these bacilli may still be present in large numbers in pure culture, in small numbers and disintegrating together with the staphylococcus or the staphylococcus alone may be present. It would seem unreasonable to expect to control, by the use of Staphylococcus albus vaccine alone, anything more than the staphylococcic part of the infection. We have been able to corroborate Gilchrist's findings as regards the bacillary nature of acne and have never failed to find the Bacillus acnei in the pultaceous material expressed from the primary acne pimple. Examination of smear preparations made from blackheads taken from nearly 100 different individuals again confirms the statement that these bacilli are present in large numbers and in practically pure culture, staphylococci being present only when pustule formation develops, and by no means always present then. Again the opsonic index to Staphylococcus albus in early, though marked, acne is as a rule nearly normal, being usually .8 or .9. When marked pustulation is present and secondary infection with Staphylococcus albus takes place the index may become very low to Staphylococcus albus.

Reasoning on this basis that acne is, as a rule, a combined infection, we have treated it as such, using a combined bacillary and Staphylococcus albus vaccine with results which are most

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encouraging when one considers the class of cases treated. Unfortunately it is most difficult to cultivate the Bacillus acnei in amounts suitable for making vaccine and it is practically impossible to obtain autogenous vaccine in most cases. We, therefore, have used a stock bacillary vaccine and, when possible, an autogenous Staphylococcus albus vaccine, with the result that six cases are apparently cured, nine cases markedly improved and two cases unimproved. In these last two cases we were unable to get any growth though pimples were repeatedly opened and coverslip preparations showed the presence of the Bacillus acnei in pure culture. Five cases show definite improvement and are still taking treatment, though it is too soon to speak with any degree of positiveness as regards the ultimate outcome. Six cases did not come for treatment with any degree of regularity and, after receiving a few doses of vaccine, failed to continue treatment and so can not be considered in this report.

Staphylococcus aureus.

Furunculosis: We have treated seven cases with most gratifying results in all. Staphylococcus aureus was the organism isolated in each instance and autogenous vaccine was prepared for each case.

One patient who had been for two years the subject of chronic furunculosis, the boils having appeared with great regularity every two or three weeks, received prompt and permanent relief following the first dose of vaccine. Treatment was continued, however, for several weeks in order to guard against a possible relapse, with the result that no more boils have appeared, over a year now having elapsed since the last treatment.

A discharging sinus following infected inguinal glands with chronic leg ulcer and furunculosis of six months standing, from all of which lesions Staphylococcus aureus was isolated, yielded promptly to vaccine therapy. In a case of Ludwig's angina, from which at operation Staphylococcus aureus was obtained in pure culture, the brawny induration subsided and marked clinical improvement was noted, complete recovery following one dose of autogenous vaccine.

Two cases of sycosis barbae non-parasitica were treated with mixed vaccines, with slight improvement in one case, though little benefit was noted in the other.

Gonococcus.

In 11 cases of gonococcus arthritis, in which stock vaccine was used, it was our own opinion, as also that of other physicians

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who followed the cases, that the improvement was more rapid and satisfactory with vaccine therapy than without it. In several cases of posterior urethritis, in which the patients had sensations of heat and discomfort, relief was obtained from the symptoms following the use of gonococcus vaccine though the shreds in the urine persisted.

In two of three cases of gonorrheal vaginitis in children the discharge promptly ceased when vaccine therapy was tried. In the third case improvement was noted but not a cure.

Streptococcus.

In two cases of endocarditis a diplococcus was isolated resembling that described by Poynten and Paine as the cause of acute articular rheumatism and malignant rheumatic endocarditis. Following the use of small quantities of a vaccine made from this microörganism, in one case marked relief of pain in the joints resulted and twice, following the use of the vaccine, the temperature fell to normal and remained normal for nearly 48 hours afterwards, though the temperature had been septic in character previous to vaccine therapy and again became so subsequently.

No permanent improvement was obtained but simply enough to suggest the possibility that perhaps, if resorted to early enough, vaccine therapy might be of great value in the treatment of this otherwise unsatisfactory condition.

In two cases of arthritis deformans the urine contained large amounts of indican and in one of these cases the patient had experienced such great relief from joint pains when suffering from ptomaine poisoning with an associated gastro-enteritis, that it seemed worth while to investigate the intestinal flora with a view of determining whether any organism was present which might bear some etiologic relationship to the joint condition present. We were somewhat surprised to find a streptococcus present in large numbers in both instances. The patients' opsonic indices were normal to Bacillus coli, but increased to this streptococcus. A vaccine was then prepared and administered in small doses to both patients. At times there seemed to be some relief ascribable to injections but nothing definite can be stated at this time as regards improvement.

Bacillus coli.

Eight cases of infection of the urinary tract with Bacillus coli communis were treated with autogenous vaccine with marked benefit so far as the general condition of the patients was concerned. One woman, afflicted with pyelocystitis, had been

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catheterized at regular intervals both day and night for months owing to her inability to pass urine voluntarily. After the third injection of vaccine the urinary condition had so far improved that micturition was accomplished in normal fashion and the urine was freed from the large amount of pus previously present though it was still definitely turbid. The mental condition of this patient, manifestly hypochondriacal when she was first seen, was markedly improved. A little girl was admitted to Lakeside Hospital with cystopyelitis, clinically resembling typhoid fever. Following the first dose of vaccine she had a normal temperature and rapidly regained her customary good health.

In one case of bacilluria of seven years' standing no improvement was obtained by the use of urotropin. Vaccine therapy was employed with marked though not absolute clearing of the urine. Urotropin was again resorted to and still further improvement was noted. At present the condition is somewhat variable, at times the urine being quite clear and then again moderately turbid though definite progress toward recovery has been made.

Marked improvement in the general condition of the patient with a lessening of purulent discharge and lowering of the septic type of temperature has followed the use of autogenous vaccine in the following cases: Subphrenic abscess following ruptured appendix. Localized peritonitis subsequent to appendiceal abscess formation. Pyelocystitis associated with stone in the kidney. Pyelocystitis: in this last case one kidney had been removed for an infected malignant growth.

From this brief summary of our cases we think we are justified in concluding that undoubted benefit can be obtained in selected cases by the judicious use of so-called bacterial vaccines. The results in chronic furunculosis are most satisfactory. Most cases of acne are strikingly improved if not actually cured. The marked improvement in the patient's general condition in infections of the urinary tract with Bacillus coli communis, together with a more clear if not entirely clear urine, makes it worth while to use vaccine as an adjunct at least to other methods of treatment and especially so if urotropin fails to give satisfactory results. The use of vaccines is helpful also to the surgeon in the postoperative treatment of suppurative abdominal and other conditions. Autogenous vaccines should be employed when possible because the results are more satisfactory, and particularly when dealing with infectious processes due to Bacillus coli and streptococci, as there are so many different strains of these organisms.

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As regards dosage, each patient is more or less an experiment in himself. The smallest dose that will give therapeutic results is the one to use and it should be continued for as long a time as definite improvement is noted. When the improvement lags, an increase in the size of the dose or in the frequency of injection is usually indicated. Probably some of the bad results obtained with opsonic therapy can be satisfactorily explained on the assumption that too large doses were used.

The Necessity for Using a Mydriatic in Refraction

By EDWARD PAYSON MORROW, Canton, Ohio

If one wishes to discover the origin of any useful or beneficial device that has been of service to man, it seems only necessary to go to the Chinese to find that thousands of years ago they discovered or invented it, *e. g.*, the mariner's compass, gunpowder, movable types in printing, and lenses for the improvement of sight. How recent to this origin, glasses to improve sight were used by Westerners is not definitely known. We know of Nero using a ground and polished emerald which enabled him to see better when he held it before his defective eyes. Glasses for the correction of presbyopia date back to a remote period and we read of Gallileo using reading lenses in his first telescope, in that epoch-making event in modern science. So important is the function of vision that it seems only natural for the intelligence and ingenuity of man to seize upon and improve any means that would aid imperfect sight; but it can surely be said that all such measures were purely accidental and empirical until Kepler demonstrated that the eye is an optical instrument as well as an organ of vision, and its study was approached in its relation to the laws of light and optics. Thomas Young, Helmholtz, Donders, Snellen, Javal—these are names to conjure with. They are men who are almost our contemporaries in point of time; in thought, and what they did for our science and art, they are still our masters and we have not caught up with them yet. The centuries that preceded them are as nothing compared with the results that have been deduced from their scientific labors on light and optics. We owe to them the elevation of the application of lenses from empiricism to one

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of the most exact and exacting surgical procedures in medicine. In this connection Donders says: "Science here celebrates her triumph; for it is at her hands that this branch has acquired its exact character," and again, "Practise in connection with science here enjoys a rare but splendid satisfaction, of not only being able to give infallible precepts based upon fixed rules, but also of being guided by a clear insight into the principles of her actions as they affect the use and functions of the eyes." In the doctrine of the anomalies of refraction and accommodation the connection between science and practise is closer than in any other branch of medicine.

The correction of errors of refraction is as much a matter of surgery as is the correction of any bodily defect. It is surgery that implies not only training and skill, as other surgery does, but it necessitates on the part of one practising it some knowledge of higher mathematics and an intimate knowledge of optics and light. It necessitates the ability to distinguish between a physiologic and a pathologic appearance of the fundus as a cause of disturbances of sight. It necessitates a knowledge of the relation existing between optical defects and those functional or organic disturbances that, to one without such knowledge, have no apparent relation to the eye. In short, it necessitates the ability to make a proper diagnosis and to give a prognosis. If this be true, pray tell me, how can a jeweler or optician, so called, be expected to give beneficial results in refraction? They don't!

So much has been written upon the subject of mydriatics that it may seem to be trite, and yet my experience leads me to the conclusion that the knowledge of their necessity in refraction is not established. I think it is a general impression that, in most cases, a fair estimate can be obtained without their use. Of this impression let me say most emphatically and unequivocally —it is wrong. I have found no means of unmasking a latent error of refraction other than with a mydriatic and I have tried and experimented with them all. While I admit that skiascopy, or the shadow test, is our best objective means of determining an error of refraction it is impossible to eliminate the ability of our patient to some accommodative effort. I have found a difference between the shadow finding before, and the shadow finding after a mydriatic equal to one-third or more of the total. So that a mydriatic adds to the accuracy of our shadow determination and proves our inability to rely upon it alone. Other means I need not mention, if this, our best means, is not reliable.

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Is it necessary to obtain a precise correction? The answer to this question is to ask whether we want satisfactory results from our work or not. If one thing more than another has been proved to my satisfaction it is that the error, and not the degree of error, sets up the trouble. Hence, a partial or an imperfect correction leaves an uncorrected error to continue as a cause. It has been frequently my experience to find a low degree of astigmatism acting as a cause of reflex disturbances, an error so low that any means, other than a mydriatic, would be uncertain for its determination.

It is pretty well agreed that unless an astigmatism is satisfied to at least within .25 D. we do not adequately benefit our patients; hence, to approximate a correction, that we get without a mydriatic, will not answer. To obtain the results demanded of an expert in this field the necessity devolves upon him of neutralizing, of completely satisfying with lenses, an existing error of refraction. If our theory is correct, that it is the error that is the exciting cause of reflex disturbances due to eye-strain, then it follows that the error must be satisfied. No means is at hand to accomplish this until the accommodation is paralyzed. The routine practise of fitting glasses without a mydriatic, the hurried and loose methods employed by busy practitioners, do not meet the requirements of our present knowledge.

At what age is it no longer necessary to use a mydriatic? My experience has shown me that an error of refraction setting up trouble may be latent as late as the fiftieth year. This, however, is the exception and my answer would be that, unless a mydriatic has previously been used in the case presenting itself, up to the age of 48 it should be employed. This is brought out for the reason that it seems to be an impression that a mydriatic need only be used in children. My experience is that it is even more important to use it after adolescence than before; at least it is equally so. It is not an uncommon experience with patients from 40 to 45 years of age, to find that without a mydriatic they will accept no lenses for improvement at 20 feet, while after using a mydriatic a decided error will be made manifest. All such cases would certainly have trouble following a fitting without a mydriatic.

Is the use of a mydriatic dangerous? This claim has been made and is dwelt upon to an alarming extent by non-medical prescribers and peddlers of glasses, opticists, optologists, refract-

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ing opticians, etc., and, I am sorry to say, I have had patients tell me that their family physician has warned them against their use and advised them to go to some of the above-named gentlemen in order to avoid the use of a mydriatic. Of course the contingency may arise of someone over 40 years of age and with a glaucomatous tendency presenting himself. If such tendency exist it will be discovered by the oculist, for no patient, over 40 years of age, is ever subjected to a mydriatic without first making sure that such a condition is not present, and should such be present, surely it is better to have it determined by a trained oculist than to have the patient temporizing with glasses fitted by someone unable to advise and treat an incipient glaucoma. My experience, however, is that there is no foundation for the fear that prevails regarding the use of a mydriatic when used in the hands of one with skill and training. I have been unable to find in the literature a single case reported in which its skilful employment has been anything but advantageous. Everyone working in this field has seen the beneficial therapeutic effect of mydriatics upon the strained muscles and hyperemic fundi of those suffering from eye-strain.

It is not my purpose in this paper to take up the question of what drug shall be employed as a mydriatic nor its method of administration. Upon these matters I have some positive views. It only remains for me to say that, like any other drug or instrument used in medicine or surgery, its proper selection and its proper use are matters of decided importance. The haphazard use of a mydriatic or the routine employment of one without thought and study is as provocative of poor results in refraction as the same loose methods would be in other fields of medicine or surgery.

To resume: 1. A mydriatic is absolutely necessary to unmask a latent error of refraction.

2. To obtain a satisfactory and permanent result it is necessary to make a precise correction. To make a precise correction the latent error must be made manifest with a mydriatic.

3. A mydriatic should be used in all cases under 48 years of age, when objective tests show the existence of an error of refraction—glaucoma excluded.

4. A mydriatic in skilled hands is not dangerous. On the contrary, aside from its use in unmasking the error, it has a beneficial therapeutic effect in asthenopia.

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Medical Cleveland in the Nineteenth Century

By H. E. HANDERSON, M. D., Cleveland.

[Continued from February Issue.]

The decennium of 1850-60 was characterized by a development of civic improvements and an increase of facilities for intercommunication, which added greatly to the reputation of our city, and placed it in the front rank of the progressive communities of the country.

Prior to 1850 the steamboats upon the Great Lakes, the stages and the Ohio canal had furnished to our citizens the only means of travel. In 1846 telegraphic communication with the east and west was established. In 1851 the Cleveland, Columbus & Cincinnati Railroad was opened as far as Columbus, and was soon completed to the Ohio river. The construction of other railroad connections speedily followed and fairly revolutionized the means of transportation and communication. Artificial gas for illuminating purposes was introduced in 1850. In 1854 the chronic feud between Cleveland and Ohio City was finally and happily closed by the annexation of the latter city, an addition which increased the population of Cleveland to about 25,000. About the same time sidewalks and the paving of streets were inaugurated, and in 1856 an improvement of still greater importance was accomplished in the introduction of the waters of Lake Erie into the city for the domestic use of the citizens.* Associated naturally with this advance was the inauguration of a partial and imperfect system of sewerage for the removal of the liquid wastes of the community. Four years later, in 1859, the first horse-cars appeared upon our streets, testifying to both the increased extension of our city, and the demands of its citizens for increased facilities of communication. Thus by the year 1860 the city of Cleveland had introduced most of the modern improvements of the period, and its natural attractions had sufficed to increase its population to the respectable figures of 43,417.

*The first Water Works Commission was elected in 1853, and the Kentucky Street reservoir was constructed in 1854. Originally the water was simply pumped into the reservoir from the open lake, a short distance from the shore. In 1874, however, a crib and tunnel (five feet in diameter and about a mile and one-half long) were constructed, and this tunnel was supplemented in 1891 by another, seven feet in diameter, connecting with the same crib. When even these facilities proved inadequate for the demands of the rapidly growing city, a new crib further out in the lake, and a new tunnel (nine feet in diameter and about five miles long and connecting with the east side of the city) were built and opened for service in 1904. For completeness it may be added that the telephone came into common use in 1877, the electric light in 1876, and the electric trolley cars in 1890.

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From this period, too, the development of strictly medical interests became so active and varied, that its discussion in a purely chronological order would lead to repetition and confusion. It seems preferable, therefore, in our history of the last four decennia of the century, to consider these developments in a rough classification under certain prominent divisions. One of the earliest and most important of these divisions is, naturally,

MEDICAL SOCIETIES

As early as 1811 the Legislature of Ohio divided the State, for purposes of administration, into five Medical Districts. Each of these Districts was required to organize a medical society, whose function it was (in the absence of local medical colleges) to examine and license applicants for medical practice, and to exercise general supervision of medical affairs within its own district. The number of these Medical Districts was increased from time to time, as necessity required, until in 1824 twenty such Districts were established. Of these, the Nineteenth included the counties of Cuyahoga and Medina, and, of course, the village of Cleaveland, with a population of about 500 inhabitants. Dr Long at once issued a call for the organization of the Medical Society of the Nineteenth Medical District, and on May 25, 1824, the qualified physicians of that District met at the hotel of Gaius Boughton, in the village of Cleaveland, for the purpose of forming the necessary society.* This was duly organized with the following officers:

President	Dr David Long
Vice-President	Dr Bela B. Clark
Secretary	Dr William Baldwin
Treasurer	Dr John M. Henderson
Censors	Dr George W. Card Dr John Harris Dr William Baldwin

The annual meeting of the Medical Society of the Nineteenth Medical District was always held on the last Tuesday in May, and what was called the "mid-year meeting" took place on the last Tuesday in October. At the annual meeting of 1826, which was held at the house (hotel?) of Salmon Oviatt, in Richfield, Medina county, a resolution was adopted authorizing the establishment of a society library, and appointing a

*In September, 1821, Dr Long publishes a call for a meeting in the village of Cleaveland of the Medical Censors of the Third Medical District. We may infer, therefore, that an earlier medical society than that of which we are speaking must have existed in the vicinity of Cleveland, but I have been unable to trace any evidences of its activity beyond the foregoing notice.

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committee, consisting of Drs Long, Clark and Alexander M. White, to purchase suitable books for the same. Dr Lewis F. W. Andrews was also elected the librarian of the proposed library, which was to be located in the village of Cleveland. At the same meeting the secretary, Dr William Baldwin, was authorized to publish for three successive weeks in the *Cleaveland Herald* the names of all members of the society, and his compliance with this resolution happily furnishes us with a complete roll of the membership of the society in 1826. It reads as follows:

David Long	Seth S. Handerson	Donald McIntosh
John M. Henderson	Alexander M. White	William Baldwin
Elijah DeWitt	George R. Pardee	John Turner
L. F. W. Andrews	Secretary Rawson	Henry Hudson
Samuel Austin	Elijah Burton	Ezra Graves
Havilla Farnsworth	Richard Angell	John N. Gates
Asahel Brainard	George W. Card	Nathan H. Palmer
Bela B. Clark		

Originally the meetings of the Medical Society of the Nineteenth Medical District were held in different localities throughout the District, but we notice very early a tendency to confine them to Cleveland, probably because a majority of the members resided in this village, which also furnished better accommodations for the entertainment of a considerable number of guests. The Franklin House, on the site of the present Perry-Payne Building, Superior Avenue, was a specially favorite rendezvous, and its proprietor, Philo Scovill, enjoyed for many years a well-merited popularity as a village Boniface.

The roster of presidents of the Medical Society of the Nineteenth Medical District from 1824 to 1832 is as follows:

Dr David Long . . .	1824-26	Dr Elijah DeWitt . .	1829-31
Dr Bela B. Clark . .	1826-28	Dr Joshua Mills . .	1831-32
Dr Donald McIntosh .	1828-29		

An examination of the available files of the *Cleaveland Herald* after the year 1832 furnishes no further information of the fate of this society. Possibly the advent of the cholera in that year, and the disturbances occasioned by its presence, may account for the sudden break in its history, but we have no sufficient warrant to assume that it necessarily terminated its career at this point. Our verdict on this question must, for the present, be simply "Not proven."

The tradition of an early medical society in Cleveland, to which belonged most of our early and reputable physicians, including such eminent men as Drs John Delamater, Jared P.

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Kirtland, Erastus Cushing, Horace A. Ackley and others, has been long current among the older members of the profession, though supported, so far as I can find, by no substantial evidence. The preceding account of the Medical Society of the Nineteenth Medical District seems to support, in some degree, the claims of this tradition, though it appears improbable that this early society could have continued until 1843 without leaving some further evidences of its existence.

At all events, a sketch of the career of this early medical society, in which Cleveland and its physicians took an active part, will doubtless prove interesting to their colleagues of the present day, and may, perhaps, furnish some new views of the medicine of our forefathers.

The organization by Dr Kirtland in 1845 of the Cleveland Academy of Natural Science has been already mentioned. This society, though non-medical in its character, seems to have been very popular among the physicians of its day, and bore upon its roll the names of the following medical men of the mid-century period:

Jared P. Kirtland	C. D. Brayton	Elisha Sterling
Charles A. Terry	J. J. Delamater	(1825-1891)
Jehu Brainerd	John S. Newberry	Thos. G. Cleveland
Erastus Cushing	Samuel St. John	Theodatus Garlick,
J. Lang Cassels	Horace A. Ackley	(1805-1884)

This society seems about 1860 to have fallen into a condition of inanition, if it did not really cease to exist. But in 1869, chiefly through the exertions of Dr Elisha Sterling, it was revived as The Kirtland Society of Natural Sciences, which maintained an existence until 1881. Among the medical members of the latter society were:

Jared P. Kirtland	Theodatus Garlick	Alleyn Maynard
Proctor Thayer	John E. Darby	John S. Newberry
John Bennitt	Lyman Little	Elisha Sterling

Upon the shelves of the Medical Library we also find a manuscript copy of the constitution and by-laws of the Cleveland Medical Lyceum, a society organized in January, 1846, by the faculty and students of the Cleveland Medical College, and which continued to exist, apparently, as late as 1857. Membership in this society, however, was limited to the faculty and students of the college, and the society was therefore a purely private organization.

In the year 1848 the little coterie of homeopathic physicians then present in Cleveland united in the organization of a medical

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society, under the title of the Cuyahoga County Homeopathic Society, which is said to have maintained a continuous existence from 1848 to the present day, and to have been the lineal progenitor of the present Cleveland Homeopathic Medical Society.

I am indebted to Dr J. Richey Horner, of this society, for the following incomplete roster of the presiding officers from 1848 to the year 1900:

1848-9	Dr C. D. Williams		
1849-50	Dr John Wheeler	1878-9	Dr G. J. Jones
1852-3	Dr S. R. Beckwith	1880-83	Dr H. F. Biggar
		1884-85	Dr G. J. Jones
1867-8	Dr D. R. Beckwith	1886-87	Dr J. H. Stevens
1868-9	Dr T. P. Wilson		
1869-70	Dr George H. Blair	1891-92	Dr H. B. Van Norman
1870-71	Dr H. F. Biggar	1892-95	Dr F. H. Barr
1871-2	Dr H. B. Van Norman	1896-97	Dr D. H. Beckwith
		1897-98	Dr A. L. Waltz
1873-4	Dr D. H. Beckwith	1898-99	Dr G. W. Spencer
		1899-1900	Dr E. H. Jewett
1875-6	Dr H. F. Biggar		

During the internal dissensions of the homeopathic fraternity, in the period between 1890 and 1896, a rival society, called The Cleveland Academy of Medicine and Surgery, was organized, but in the year last mentioned this was merged into the older society, which then assumed the title of the Cleveland Homeopathic Medical Society.

The Cuyahoga County Medical Society, the logical successor of the early Medical Society of the Nineteenth Medical District of Ohio, was organized in April, 1859. Its first officers were:

President	Dr C. A. Terry
Vice-President	Dr J. A. Sayles (d. 1873)
Secretary	Dr Thos. G. Cleveland (1825-1873)

Regular meetings were held quarterly, and an essay was read at each of these meetings by one of the members.

At the July meeting, in 1859, an essay on "Malformations" was read before the society by Dr H. K. Cushing, our honored colleague of the present day.

The second regular meeting of the society was held at the American House, October 6, 1859, on which occasion an interesting paper on "The Treatment of Some Cases of Epilepsy" was presented by Professor G. C. E. Weber, another colleague whose declining years we all delight to honor.

At the third regular meeting, held in the Angier (now

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Hawley) House, January 6, 1860, the following officers were elected for the ensuing year:

President	Dr J. A. Sayles
Vice-President	Dr M. L. Brooks (1813-1899)
Secretary	Dr Thos. G. Cleveland

From this time until 1880 no records of the society are available, and its history during this long period can be gleaned only from tradition and the few scattered and incidental notices found in the journals of that day. It is probable that the outbreak of the Civil War, which created a demand for the services in the army of most of the younger, and many of the older physicians, so reduced the attendance of the society, and the excitement of the times so diverted the attention of its members, that its regular meetings were either suspended entirely, or at least degraded into mere formalities, which preserved its organization without maintaining its scientific spirit. We are told by some of its surviving members that the meetings of the society were held at irregular intervals in the Hoffman Block (now the Cuyahoga Building) on Superior Street, and that the few members who assembled diverted themselves, while awaiting a quorum, by the relation of jokes and stories redolent with the odors of a hoary antiquity. Certain it is, that at the close of the war the Cuyahoga County Medical Society was moribund, and offered no scientific attractions to the young men who returned from the army full of energy and rich in practical experience. The natural and inevitable result of such conditions was the organization of a new society.

Accordingly, on May 9, 1867, a new society, known as the "Cleveland Academy of Medicine," was organized, and maintained a more or less active career for some years, when, after a temporary metamorphosis into the "Cleveland Medical Association," it was finally merged into the bosom of the old, but rehabilitated Cuyahoga County Medical Society, in 1874.

No written records of the rehabilitated Cuyahoga County Medical Society prior to the year 1880 have been preserved to us, but from the latter year forward the minutes of its meetings will be found upon the shelves of the Cleveland Medical Library.

From an examination of these records we find that the society was incorporated and a new constitution adopted in 1884, and we are enabled also to present a roster of its presi-

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dents from 1880 until the close of its career as an independent society.

Dr W. J. Scott	1880	Dr I. N. Himes	1892
Dr C. C. Arms	1881	Dr A. R. Baker	1893
Dr W. O. Jenks	1882	Dr H. J. Herrick	1894
Dr E. D. Burton	1883	Dr H. E. Handerson	1895
Dr H. K. Cushing	1884	Dr O. B. Campbell	1896
Dr I. N. Himes	1885	Dr W. A. Knowlton	1897
Dr H. H. Powell	1886	Dr F. E. Bunts	1898
Dr P. H. Sawyer	1887	Dr F. E. Bunts	1899
Dr J. D. Jones	1888	Dr C. J. Aldrich (1861-1908)	1900
Dr Dudley P. Allen	1889	Dr C. A. Hamann	1901
Dr Wm. T. Corlett	1890	Dr J. P. Sawyer	1902
Dr P. H. Sawyer	1891		

On May 23, 1902, the Cuyahoga County Medical Society, after an existence of 43 years, was merged with the Cleveland Medical Society to form the present Academy of Medicine of Cleveland.

The first Cleveland Academy of Medicine, of which mention has been already made, and whose records are preserved by the Medical Library, was organized in 1867 with the following officers:

President	Dr M. L. Brooks (1813-1899)
Vice-President	Dr J A. Sayles (died 1873)
Recording Secretary	Dr J. C. Schenck
Corresponding Secretary	Dr Colin Mackenzie
Treasurer	Dr Thos. G. Cleveland (1825-1873)
Censors	Dr H. K. Cushing Dr W. J. Scott Dr H. J. Herrick (1833-1901)

Its meetings seem to have been held in various places, *e. g.*, the office of Drs Brooks and Herrick, the hall of The Good Templars, the hall of the Y. M. C. A., the Cleveland Medical College, etc., and towards the close of its career the ominous notice "No quorum" becomes increasingly frequent. On May 5, 1868, we read that the Academy, after the approval of the minutes of the last meeting, "proceeded to Garrett's for refreshment"—a style of procedure which, doubtless, redounded to the popularity of the new organization. *Per contra,* on September 1, 1868, Dr Thos. G. Cleveland read before the society a paper on the use of the clinical thermometer in typhoid fever. As Wunderlich's epochal work, "Das Verhalten der Eigenwärme in Krankheiten," was not published until 1868, we may infer that

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some members of the Academy at least kept touch with the advances of medical science.

The presidential roster of the Academy is as follows

1867-8	Dr M. L. Brooks
1868-9	Dr J. A. Sayles
1869-70	Dr John Bennitt (1830-1892)
1870-71	Dr W. J. Scott (1822-1896)
1871-72	Dr W. J. Scott
1872-3	Dr Proctor Thayer (1823-1890)
1873-	Dr Isaac N. Himes (1834-1895)

In September, 1873, the Academy of Medicine united with "The Medical and Pathological Society," to form a new society, under the title of "The Cleveland Medical Association," the first officers of which were:

President	Dr John C. Preston (1819-1890)
Vice-President	Dr D. B. Smith
Secretary	Dr I. N. Dalby
Treasurer	Dr H. H. Powell
Censors	Dr P. Thayer Dr I. N. Himes Dr John Bennitt

In the following year, 1874, Dr H. J. Herrick was elected president of the Association, which in a few months was merged into the Cuyahoga County Medical Society, as already mentioned.

No records of either the "Cleveland Medical Society" or the "Pathological Society" have been found, but it is hoped that some of the surviving members of these organizations may be stirred up by this notice to supply the medical profession with at least a series of "reminiscences" of these early associations. The fact that the society with which the Academy united in 1873 bore the title of *"The Medical and* Pathological Society," suggests the thought that the Cleveland Medical Society may have been merged into the Pathological Society prior to the date mentioned.

In December, 1887, "The Society of the Medical Sciences of Cleveland" was organized by some of the more prominent physicians of the city, for the cultivation of medical science, and with the additional purpose of founding a public medical library for the use of the profession. This society met at the houses of its members, and its annual dues were fixed at $20.00, in order to accumulate a surplus for library purposes. Dr H. K. Cushing was elected its first president, and annually re-elected

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to the same office until 1895, when he finally refused further service in an official capacity. Dr I. N. Himes was, accordingly, elected his successor, but died in office, April 1, 1895, and was succeeded by the last president, Dr John H. Lowman. The minutes of the meetings of the society are preserved in the Medical Library, and from them we learn that its last meeting was held February 18, 1896. At this time it was proposed to change the name of the society to "The Cleveland Clinical Society," and a committee was appointed to make the necessary changes in the constitution for that purpose. No record of the report of this committee is found, and it is believed that the society simply disbanded without formal action.

It should, however, be recorded to the eternal honor of "The Society of the Medical Sciences," that in 1894 it voted unanimously to turn over to the Cleveland Medical Library Association whatever sum remained in its treasury after the payment of its just liabilities, and the sum of $2,000 was actually placed in the hands of the treasurer of that association, for library purposes.

In the last decennium of the nineteenth century the Cuyahoga County Medical Society, now more than 30 years old, began to exhibit the ordinary signs of senescence, *e. g.*, inordinate respect for precedent, lack of initiative and a tendency to drift behind the rapid current of medical progress which characterized this period. Again the younger members of the profession complained (probably with some justice) that the exaggerated conservatism of the old society was a hindrance to the advancement of local medicine, and that the older members of the old society were unwilling to do anything themselves, and still more unwilling to entrust the administration of affairs to younger and more energetic hands. And again the experience of the 60's was repeated. A new society was organized on February 3, 1893, under the old name of "The Cleveland Medical Society," and under the presidency of Dr W. J. Scott, now 71 years "young," whose scientific zeal and energy were absolutely impregnable to the assaults of age and infirmity, and whose popularity was equally general and well-merited. The roster of its later presidents is as follows:

Dr W. H. Humiston	1894-5	Dr A. F. House	1898-9
Dr William E. Wirt	1895-6	Dr H. S. Straight	1899-1900
Dr J. E. Cook	1896-7	Dr Chas. F. Hoover	1900-01
Dr N. Rosenwasser	1897-8	Dr P. Maxwell Foshay	1901-02

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On May 23, 1902, the Cleveland Medical Society united with the Cuyahoga County Medical Society to form the present flourishing Academy of Medicine of Cleveland.

The Cleveland Medical Library Association originated through the general recognition of the necessity for the establishment in this city of a large general medical library, which should supply more fully than was otherwise practicable, the growing needs of the medical profession. With this object in view, the Cuyahoga County Medical Society for a number of years had devoted a considerable portion of its annual income to the purchase of books and journals, which were deposited upon the shelves of the Case Library. In like manner the Society of the Medical Sciences had accumulated a considerable fund for the establishment of a library. And when, in 1893, the Cleveland Medical Society was organized, the zeal and energy of the new society were likewise enlisted in the promotion of an object, the desirability of which was apparent to all.

Accordingly, in 1894, a joint committee was appointed by these societies to consider the best means of organizing a medical library, and to draw up a suitable constitution for its administration. The personnel of this committee was as follows:

From the Cuyahoga Co. Medical Society . . . .
Drs H. E. Handerson, M. Rosenwasser and Henry W. Rogers.
From the Society of the Medical Sciences . . . .
Drs Isaac N. Himes, Dudley P. Allen and B. L. Millikin.
From the Cleveland Medical Society . . . . .
Drs W. H. Humiston, J. E. Cook and P. Maxwell Foshay.

On November 7, 1894, the society was organized under the title of "The Cleveland Medical Library Association," a constitution was formally adopted, and Dr Joseph E. Cook was elected the first president. At once the Cuyahoga County Medical Society donated to the Association its books and journals already collected, and the balance in its own treasury, amounting to the sum of $419.35; the society of the Medical Sciences contributed its check for $2,000, and the Cleveland Medical Society offered its own collection of books and the sum of $100.00.

At first the books and journals of the Association were deposited in the Case Library, the Trustees of which had generously offered their shelves, together with the services of their librarian, for this purpose. By 1897, however, the burden assumed by the Case Library was found to be so great that the

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Trustees notified the Association they did not feel willing to support it for more than another year, and it was apparent that some other system must be speedily adopted.

Accordingly an earnest effort was inaugurated to secure funds to purchase a suitable building for the library. An appeal was made to both the medical profession and the general public with such happy results that the Association was enabled, on January 22, 1898, to purchase the property upon which the library is now located. After considerable repair and some alterations, the building was opened to the profession on December 12, 1898.

In 1905 it was discovered that the weight of the accumulating books was proving an undue burden upon the library building, which had been constructed for a private residence, and that some relief to this constantly increasing strain must be speedily provided. It was therefore determined once again to make a vigorous effort to erect in the rear of the existing building a fireproof book-stack, capable of providing for the needs of the library for a considerable number of years, and to add thereto, if possible, a comfortable and commodious auditorium for the meetings of the Academy and similar societies.

Thanks to the zeal and energy of the officers of the Association and the generosity of numerous friends among the laity, both these purposes were accomplished. The new library and auditorium were formally opened to the public October 8, 1906, with an admirable address by Dr Abraham Jacobi, of New York City.

The presidential roster of the Cleveland Medical Library Association is as follows:

Dr Joseph E. Cook	1894-5	Dr Dudley P. Allen	1904-6
Dr H. E. Handerson	1895-1904	Dr H. G. Sherman	1906-

A Medico-Legal Society, under the presidency of Judge C. W. Noble, was organized as a Section of the Cuyahoga County Medical Society in 1894, and for several years thereafter enjoyed considerable popularity, and maintained a laudable activity. In 1898, however, it apparently succumbed to the dry rot which affects so many similar institutions, and practically disappeared, until revived during the present year (1909) under promising auspices, and as a Section of the Academy of Medicine.

[TO BE CONTINUED]

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The Cleveland Medical Journal

CONTINUING { THE CLEVELAND MEDICAL GAZETTE and THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

The Official Organ of the Academy of Medicine of Cleveland

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EDITORIAL

A German Opinion of American Hygiene

It is always of interest to see ourselves as others see us, even when the opinion is unfavorable, and an excellent opportunity is given us by Dr Ernest Schultze, in the current number of the *Hygienische Rundschau*. After a more or less extensive series of travels in this country he has published a valuable discussion of what he considers the lack of governmental control of hygiene throughout the United States. With due allowance for the rapid growth of our communities, he notes the fearful lack of hygienic activity and sets it down to two facts—corruption and indifference. The doctrine that to the victor belongs the spoils, with the consequent rapid changes in the official personnel, and the commercial spirit that places financial profit above the sacredness of human life and health, are dwelt upon, with comments on the efforts that are being made in certain States and communities to better matters. Much stress is laid on the articles of Samuel Hopkins Adams, his statement that only one-fourth of the officials are of any value being prominently brought forward. As concerns indifference, he notes the toll paid to death through our

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railroad accidents and our fires, citing the Collinwood disaster as an instance, and exclaims with wonder at the casual attitude of the traveling public. A natural result of such indifference is the inadequacy of our vital statistics, and this he considers as the chief technical interference with the efficient development of proper hygienic activity. The registration of deaths from tuberculosis under other causes, the well known concealment of the yellow fever epidemics in the Southern ports, and the concealment of plague on the California coast are cited as crying instances of wilful indifference to the general welfare of the people. Dirty streets, surface drainage, inadequate and bad water supplies, even in towns like Washington, receive a due share of his disapproval, though some towns such as Boston are notably excepted. The disregard of the health and hygiene of the colored man in the South are set down to race hatred, and statements are made that in many of the main cities not only is there no attempt made to protect the health of this portion of the citizens, but no records of their deaths and diseases are kept and the attitude is that "the more of them die the better."

On the other side of the shield he has much good to say of the general activity of Massachusetts, of the care exercised in the supervision of the milk supply of New York and other cities, and even goes so far as to admit that in the matter of parks, play grounds and open air gymnasiums, Germany still has something to learn from us.

Although the formation of Associations like the American Public Health Association are of great value, Dr Schultze hits sharply at the vital defect in our system, namely the lack of uniformity in laws and regulations. He dismisses the doctrine of States Rights as an anachronism, with all its impossibilities of marriage and divorce laws, and urges strongly the establishment of a Federal Bureau. The first step has been taken in the enaction of the Pure Food Laws, but this is only a step and must be diligently followed up towards greater things.

One may say with some truth that in certain of these matters the skirts of Germany are not immaculate, but none the less truth is in the accusations. Some of the statements may be discounted, but they are in the main correct, and in so far as they are correct they are a reproach to the country. Though hygiene is a child of the Nineteenth Century, and our country is still young, it is already old enough to know better. The reckless pursuit of money without consideration of human life is nowhere better exemplified than in the adulteration of foods and the use of preservatives to mask

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unsanitary products, this has received a severe blow in the Pure Food Law, incomplete though that is, but the spirit of disregard of human health, and of the indifference to this disregard so long as it does not affect one personally, is still rife, and constitutes one of our greatest dangers. It is in the power of the physician to do much to counteract this and in fact it is to his indifference that much of the lack of vital statistics is due. It is to be regretted that, in many communities, instead of urging the careful attention of the laity to the existing laws, the medical man aids and abets their disregard. Stimulation by precept and example, of observance of such laws as exist in this direction, and attempts to have their application extended to more thinly settled districts are no less the duty of the conscientious physician than are the diagnosis and treatment of disease.

The Medico-Legal Section of the Academy

A new section of the Academy of Medicine of Cleveland, to be known as the Medico-Legal Section, has recently been organized. All members of the Academy, and reputable attorneys who become associate members of the Academy, are eligible to membership in it. Meetings will be held quarterly in the auditorium of the Cleveland Medical Library and the programs will consist of subjects equally vital to those practising either law or medicine. Every-day problems, involving medical and legal aspects, arise, and the discussion and thorough understanding of such matters by the members of both professions will unquestionably result in creating harmony and eliminating much of the confusion that at present exists in the conduct of civil and criminal trials in which the physician has to testify. The average medical practitioner is woefully deficient in forensic knowledge—due unquestionably to the fact that this very important subject is more or less neglected in the medical college curriculum. On the other hand, the lawyer has little opportunity to keep in touch with medical advancement and is practically a stranger to the very great progress that has been made. The establishment of a medico-legal section is therefore most timely and significant. If properly conducted it will be the means of uniting medical and legal minds and eventually it will become a postgraduate institution of great value. All physicians will naturally feel the need of a society of this character and will be attracted to it. Members of the bar will find it an advantage from an educational stand point and it will, no doubt, be appreciated by them as well.

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The Prosecution of Irregulars

The conviction of the men in charge of the "Dr Boyd Museum and Medical Offices," located on Prospect Avenue, is a matter of great satisfaction to the reputable members of the profession. County Prosecutor Cline, the *Cleveland News* and Geo. H. Matson, Secretary of the Ohio State Board of Medical Registration, worked together to this end, and it is hoped that this is but the first of a series of such convictions to be secured in the near future. Medical men have been criticized for not showing sufficient energy in denouncing and prosecuting these concerns, but their hands are too often tied and the prosecution must take its course through the regular legal channels. A prosecutor, such as Mr. Cline seems to be, will be of the greatest aid in putting such unprofessional characters out of business. It is not altogether a drawback to have such action apparently originate at the hands of a layman. Any accusation on the part of the public that such action was the result of professional jealousy is therefore obviated. Such a charge, although absurd from the standpoint of the profession, is none the less apt to be made by those outside the profession. This can be easily understood when one constantly sees evidences of the childlike credulity of the average layman in matters pertaining to his health and the treatment of disease. It is surprising that people, of an intelligence far from mediocre, will resort to medical quacks whose real lack of ability and whose untruthfulness could be easily discovered by the most superficial investigation if not from a cursory perusal of their boasting and lying circulars claiming to cure absolutely incurable diseases. An instance has recently come to our notice. A patient, living in a nearby town, was sent by his physician to this city to consult a reputable physician. The patient was given a note to this specialist but instead of delivering it he went to a notorious quack who quickly relieved him of all his available cash and secured his note for $100.00, agreeing in return to cure him. Finally the patient, realizing that he had been duped, resorted to the physician to whom he had been referred. The latter found that the quack had done absolutely no good although the condition was one that could be markedly improved under appropriate treatment. So long as bucket shops, fake wrestling matches and other "sure things" continue to flourish we may expect the medical quacks to find numerous dupes. To offset their activities we can, however, do our part by educating the public and elevating the standard of our profession.

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Department of Therapeutics

CONDUCTED BY J. B. McGEE, M. D.

Chronic Bronchitis: F. Forchheimer, in the *American Journal of the Medical Sciences* for February, considers the treatment of chronic bronchitis. As regards secretion, he believes that in ordinary cases postural treatment is the best for the removal of secretion from the bronchial tubes. If we change the usual position, so that the head is lower than the trunk, bronchial secretion neither stagnates nor does it move in the wrong direction, as the combined effect of ciliated motion and gravity is sufficient to remove comparatively large quantities of secretion. Elevation of the foot of the bed is recommended, and in most cases is sufficient. At times, depending upon the side and seat of the lesion, combinations of the ventral or lateral posture may be necessary. The foot of the bed may be elevated by putting wooden blocks or bricks under it and long experience has taught him that the first elevation should not exceed two inches. Later this may be increased to four or five inches, but whatever is done must be done gradually. The treatment of the cough in chronic bronchitis is an especially difficult problem, since if we check the cough too much there may be retention of secretion with all its consequences, while if we permit the patient to cough too much there may follow weakening of the bronchial tubes. When the cough is so annoying as to cause local or general symptoms, something must be done. The milder measures should first be tried, and when the patient can be taught to inhibit the reflex which produces the cough, we possess an invaluable way of checking the cough, and one which succeeds frequently. But there will frequently be failures with the measures recommended and then recourse must be had to remedies which reduce the cough reflex. The bromids and chloral are sometimes valuable, but commonly we must resort to codein, heroin or morphin. In a chronic disease the prevention of drug habit is of the utmost importance, and although a codein habit does occasionally occur, it is very rare and easily relieved, therefore this drug should be given first. If it does not give relief, heroin should be tried in small doses (0.004 to 0.008 gm) 1/16 to ⅛ grain; as Harnack first pointed out it is more toxic than morphin, and heronism (morphinism) does occur. Last of all opium or morphin should be administered, preferably opium. He considers the treatment by mineral waters and climatic change, and states that, as a result of clinical observations, we have taken it for granted that the administration of iodin is followed by distinct effects upon glandular structures, as well as upon some of the consequences of inflammation. It is certain that in so far as the lesion of chronic bronchitis is confined to glandular hypertrophy and infiltration, the disease may be cured by the consistent administration of iodin. In some degree the changes in the bronchial wall resemble those of arteriosclerosis, as there is destruction of elastic and muscular tissue and substitution of fibrous tissue for them. We may look upon the therapeutic problem as possessing the same terms. That the iodids act only by causing increased expectoration in chronic bronchitis is refuted by the observation that they are of great value when the

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expectoration is already increased. But to get good effects from iodin, it should be given as we give it in arteriosclerosis, for a long time, from one to two years, the dosage to be controlled by physiologic effects. Any preparation of iodin may be given and the choice frequently depends upon the so-called idiosyncrasies of the patient. Whenever it is possible, the iodids should be given in chronic bronchitis as they are followed by better results than pure iodin. While much may be accomplished by drugs, equally as much may be attained in the same direction by the proper employment of exercises and gymnastics.

Tuberculin: In the *Monthly Cyclopedia and Medical Bulletin* for January, F. M. Pottenger treats of the use of tuberculin, stating that the term tuberculin has now come to mean any preparation made from the culture fluid on which tubercle bacilli grow, or any preparation made from the bacilli themselves. Unless this is understood much confusion will arise, for the preparations vary a great deal in their dosage and somewhat in their action. All are of value in the treatment of tuberculosis, although different clinicians have their own special preferences. Tuberculin is very often erroneously spoken of as a serum. Serums, for the treatment of tuberculosis, are those preparations which are made from the serum of animals which have been subjected to doses of some of the products of the tubercle bacillus, and so far they have not found a very extensive use in the treatment of tuberculosis. There are two factors concerned in the cure, the cells and the stimulating toxin. If the cells should fail to respond in the production of protective substances, no matter how much toxin is present, the infection would not heal; and if the toxin is wanting, we must conceive of the cells lacking the necessary stimulus for their excitation. In treating tuberculosis, then, the indications are for first keeping the body cells in such a state of health that they will respond to stimulation when the proper toxins are thrown into the tissues. Second, if for any reason the toxin from the focus of infection fails to cause the necessary stimulation, it must be supplied artificially. The latter we are attempting to do when we use tuberculin therapeutically. We can see, then, that the scientific treatment of tuberculosis consists in both building up and strengthening the body cells by bringing the afflicted individual to the highest state of physical strength consistent with his condition, to which end such well recognized measures as open air, good food, hydrotherapy, rest, change of environment, climatic change and suitable tonics have been directed; and artificially supplying the toxin necessary for the stimulation of the cells so that they will respond in the production of the specific protective substances which are necessary to the cure. To this end tuberculin is successfully employed. It seems folly, then, to speak of the tuberculin treatment, of the open air treatment, of the dietetic or hydrotherapeutic treatment as complete without both facors. In regard to the particular preparation to be employed, he says that all are of value, and leaves the choice to the physician. It is impossible to suggest the beginning dose, because it varies with the preparation, and the condition of the patient. In the administration of tuberculin above all other remedies we must

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individualize and it seems best to give the small doses and if there is no indication of reaction to increase the amount at each succeeding dose until the point of reaction is found. Two days is a very common interval between the doses; this is to be lengthened to three or four days or a week, and even a month as the doses become larger. The injections should be made preferably subcutaneously and not deep into the tissue. This affords opportunity for watching the local reaction at the point of injection. Tuberculin must not be looked upon as a sure cure for tuberculosis, neither must it be expected to remove the dead and dying tissue which is always present in advanced cases. It is, however, Nature's own remedy for tuberculosis. It is what she uses to stimulate the defense of the organism. If we use it intelligently we can supplement Nature, and greatly fortify her in her struggle against the tubercle bacillus; but with it we must employ measures directed toward building up and strengthening the patient.

Digitalin: William F. Waugh, in the *American Journal of Clinical Medicine* for February, summarizes his personal experience with digitalin, stating that in France and Italy digitalis has for many years been abandoned in favor of digitalin. He believes the Germanic digitalin to be the quickest in action of all the digitalis principles. He has frequently recognized its effects within half an hour after the dose has been given, and other good observers have stated that the effects become manifest in a few minutes. It is soluble in water, and for this reason acts more promptly and also can be used hypodermically without undue irritation. Of all the digitalis glucosides Germanic digitalin exerts the greatest heart-toning power, and the least contractile effect on the blood-vessels. For these reasons, *viz.*, its solubility, its heart tonic action, and its slight effect upon vascular tension, it is the safest of the digitalis preparations, also because it is the most readily eliminated. He has never known cumulation to occur from its use, nor has such an action ever been reported to him. Beates has given this preparation for many years, in doses of 1/10 of a grain and upward, and has even increased the single dose to two grains on occasion. In ordinary cases digitalin is safe up to ¼ of a grain, but he prefers to give granules of one milligram each, every half hour to one hour, until exactly the required degree of tonicity has been secured. This is not so much from a dread of the toxic effects of the remedy as from the conviction that to secure the best results from it, the utmost nicety is to be employed in exactly fitting the dose to the needs. If exactly the normal force of the heart and tension of the vessels is secured, the circulation is facilitated. If the dose is pushed beyond that point, we shall have a reactive depression of the heart's force and by undue contraction of the vessels an obstacle would be placed in the way of the heart's fulfilling its function. Both these elements would make for weakness after preliminary stimulation. To those who appreciate at its full value the importance of this suggestion, digitalin is indeed a priceless friend in need. To those who realize only that digitalis is a "remedy for heart disease" its application is fraught with perils which unnerve one contemplating them.

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Mercury: In the *Medical Council* for February, Frederick R. Sturgis writes concerning the hypodermic method of using mercury in syphilis, or more correctly speaking, the intramuscular injection. In using this method, the needle is plunged into the tissues at right angles with the surface of the body, instead of being pushed into the cellular tissue underneath the skin as with morphin or cocain. It has been found that by making a deep injection, the various disadvantages of the hypodermic injections of mercury are less likely to ensue and absorption takes place perhaps a little more rapidly. The preparation of mercury which he prefers is "cypridol," a one percent solution of mercuric biniodid held in suspension in oil. It is used in doses of eight to 10 mm. daily or every second day, which is about as much as most patients will tolerate, although a few will bear two injections daily. As a rule this produces no disturbance, while the full physiologic effect of the mercury is obtained. As to the site of the injection, he advises in the first place never to make injections in any portion of the body where the skin is drawn tightly over a bone. Second, always select some place where there is a large amount of muscular tissue, thus no injections should be made above the elbows, knees, hips, shoulders etc., but in the nates, in the back of the arms, and in the front and fleshy portion of the thighs, as well as in the calves of the legs and in the muscular tissues of the back, injections may be made freely and with confidence that no untoward results will ensue. Third, make the injections at right angles with the surface of the body, plunging the needle deep into the tissues, avoiding those portions of the body where important arteries, veins or nerves lie. If these precautions are observed, no trouble will result from the subcutaneous injections of mercury and will oftentimes be of great service, although he does not prefer this method to the older one of giving the mercury by mouth. *The Medical Record* for February 6 calls attention to the dangers of this method of using mercury. Lassere shows that 70 deaths have been ascribed to the procedure by various syphilologists, and that over 100 serious accidents have likewise been reported. Injections of calomel and of the gray oil of the French have most deaths to answer for, 38 fatal cases having been reported after the use of these preparations. It is probable that the figures published by Lassere represent but a small number of the fatalities that have occurred; 70 deaths, however, is a number large enough to put every one employing deep injections of mercury on his guard, and to show the advisability of telling patients that some danger, beyond the power of the physician to obviate, is present with this method of medication.

Fever: The *Therapeutic Gazette* for January states that at the present time a large part of our treatment has become symptomatic and in a very large number of diseases we have no drugs or remedial measures which can be said to influence the morbid process itself by any direct effect. One of the symptoms of most, if not all, of the infectious diseases, which receives a very large amount of attention from the active practitioner, is the condition known as "fever." As a result of scientific research, the former enthusiasm shown in efforts to reduce even a moderate febrile temperature soon received its quietus and

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the coal-tar derivatives are comparatively little used today for their antipyretic effect. As a matter of fact, there is much evidence to indicate that fever, when it is within moderate bounds and is not too long continued, may be a distinct advantage to the patient in enabling him to combat infection. Sir Richard Douglas Powell is quoted to the effect, which must be evident to every practitioner on careful thought, that pyrexia is a normal reaction to toxic invasion and that the rise of temperature is a symptom as proper to certain diseases as a normal temperature is to health. The administration of drugs for the reduction of fever, if the coal-tar antipyretics are employed, therefore takes away from the body the heat which is protective in its influence, and also throws upon the excretory organs the burden of eliminating the drugs themselves, or their educts. While it has not been proved that these drugs diminish leukocytosis they certainly do not increase it. The objections to the use of antipyretics in the reduction of febrile temperature do not hold good in regard to the employment of cold in the treatment of febrile processes. It is recognized today that the benefit of the cold bath is not so much in the temperature reduction, as in the restoration of circulatory equilibrium.

Puerperal Sepsis: In the *New York Medical Journal* for January 9, Henry Weil says that at the present time certain facts are absolutely established concerning puerperal sepsis. (1) The uterine walls can and do absorb and this power is greater following abortion and labor with its more numerous veins and lymphatics. (2) The products of germ metabolism are poisonous. These toxins, when derived from pathogenic bacteria, are capable of producing violent symptoms and death when injected into animals. (3) The lochial discharges of a puerperal infection are loaded with pathogenic germs and toxins, this being the case it only remains to demonstrate that (4) absorption plays an important part in the disease. Of this there can be little doubt. The entire theory of serumtherapy is based upon toxin absorption. Drainage by irrigation is the only rational drainage under these circumstances and since the poison is being continually supplied, so must the irrigation be more or less frequently used. The irrigations to be of value must be frequently applied; the graver the case, the oftener, even to continuous irrigation in extreme cases. It is his practice, when the curette fails to control the symptoms, to resort to irrigations at once, utilizing a sort of recurrent irrigator made of soft rubber tubing and held in place by a light vaginal tampon. He irrigates rather often at first till improvement shows. In grave cases it may be needed continuously for a time.

Strophanthus: In the *Journal of the American Medical Association* for January 2, Robert A. Hatcher and Harold C. Bailey consider the pharmacology of strophanthus, believing that it has a distinct field of usefulness. The utter unreliability of the tincture because of the great variability in strength of the seed is one of the principal causes for the disrepute into which it has fallen. Another serious disadvantage, common to strophanthus and digitalis, has been the want of a pure soluble active principle suitable for hypodermic use. This want has been supplied in the crystallized strophanthin of Thorns. Though

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the official strophanthin is not an absolutely pure product, they state that they do not pretend to say that it may not answer every purpose for which the crystallized strophanthin is used. A third, and perhaps the most serious, cause of the disfavor into which strophanthus has fallen is the utter confusion concerning the dose. Their conclusions are as follows: The dosage and the proper mode of exhibiting strophanthus and strophanthin require clinical investigation. The action of strophanthin may be elicited promptly in suitable cases by injecting it subcutaneously. From 3/10 to ½ milligram of the crystallized strophanthin, in sterile (boiled) salt solution 1/4000, may be injected deeply into the gluteal muscle once in 24 hours, without fear of abscess formation or other side actions. The single adult dose of the crystallized strophanthin by the mouth is about five mgs. or less. The daily dose 30 mgs. or less. The single adult dose of the official strophanthin by the mouth is probably about 10 mgs. and the daily adult dose by the mouth is probably about 60 mgs., but the latter dose should not be used until we have further clinical experience concerning the various factors governing its absorption. The action of strophanthus by the mouth, and the factors modifying its absorption, require further clinical study. Uniformity of action can only be secured by uniform absorption and this is influenced by the menstruum, in which the drug is given, and the condition of the alimentary canal at the time of administration. It is quite possible that diet may influence the absorption of strophanthin in the human alimentary canal, so that at one time man may resemble the rodent and at another time the carnivorous animals (cat and dog) in susceptibility to strophanthin. They quote Gley to the effect that crystallized strophanthin or onabain (which is identical with crystallized strophanthin) is twice as toxic as the common strophanthin, and 80 times as toxic as digitoxin as determined by Koppe.

Salt Solution: *The Medical Record* for January 23 *(Berlin. Klin. Woch.)* concludes that there is very little tendency to seek for untoward manifestations from the use of infusions of salt solution in pathologic conditions, as the beneficial effects are so well known. The observations of Meyer and Rietschel show, however, that the introduction of the fluid is not at all an indifferent matter to the organism. They confirm the findings of Schaps, who showed that infants reacted with a distinct rise of temperature to the injections of even very small amounts of physiologic salt solution. This rise of temperature was quite specific in character, appearing from four to six hours after the injection, and either dropping suddenly on the same day, or continuing for a somewhat longer period of time. They likewise found that the addition of the salts of potassium and calcium to the solutions of sodium chlorid led to the disappearance of the reaction in many infants, and to the diminution of its intensity in all. Of course the adult human being is not nearly so sensitive to subcutaneous injections of salt as the infant; yet the reaction produced in the case of the latter probably means that the adult organism is likewise not perfectly tolerant of the solution. The wide use of salt solutions for the purposes of subcutaneous and intravenous injections would make it advisable, if these experiments are confirmed, that the proper amount of calcium and potassium salt necessary to inhibit its toxic action should be added.

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Academy of Medicine of Cleveland

MEDICO-LEGAL SECTION

The first meeting of this section was held Friday, January 29, 1909, the President of the Academy, W. E. Lower, in the chair.

The chairman, pro tem., R. E. Newcomb, was then called to take the chair.

The program was as follows:

1. Some Medico-Legal Problems from the Standpoint of the Attorney, Judge Alexander Hadden (to appear in full in the JOURNAL).

In this discussion, D. C. Westenhaver offered his hearty cooperation with the work of the new section. He had had some experience with medical experts and did not think more highly, nor yet more unkindly, of them than other experts. One complaint he had to make against them was their fondness for big words. The probable explanation of this was their desire to confuse a crossexaminer who might be treating them rather mercilessly. A good type of medical expert who had the knowledge should not adopt this plan. He hoped that through the aid of the society this tendency might be avoided.

2. Some Medico-Legal Problems from the Standpoint of the Physician, T. A. Burke (to appear in full in the JOURNAL).

B. B. Holliday, in opening the discussion, said that when he heard of the formation of this section he had been rather skeptical as to its success but, after hearing the papers which had been read, he thought that probably he had been mistaken. He had recently seen a newspaper article referring to the custom in the Middle Ages of giving animals legal trials for misdemeanors and of executing them, in certain cases, if they were found guilty. He would ask the Chairman to read this as being of probable interest to the section. Medico-legal discussions were a matter of bias. Good physicians, good lawyers and even good judges were biased and failed to agree with one another. Therein lay the benefit of this section, not in showing our learning but our weaknesses. By having our shortcomings pointed out to us and by admitting them, not only would we be particularly benefited but the society and the public would be as well. No reference had been made to the essential difference between the two professions. The lawyer dealt with questions of property and conduct, the physician with matters pertaining to sanity of the body and mind. The relative importance of the two callings would depend upon the point of view of each individual. The fault with the average medical witness was that he would not adhere to the point in question but would wander from it and besides he had not, as a rule, the time to properly prepare himself in the matter, whereas the lawyer generally looked the subject up very thoroughly. The demise of the former Medico-Legal Society was not the fault of the physicians but the attractive subjects seemed to have been exhausted and the society simply dwindled away. At the present time there were many more subjects of interest for discussion. All questions dealing with municipal government had a medico-legal aspect. The section could be made a most useful one if a proper amount of energy and patience were employed, but one man could not effect this alone. In order for the section to survive, its programs must be of interest to both lawyers and physicians.

H. F. Biggar referred to the work of the former society of which he had been a member and the purpose it had served. By educating both the lawyer and physician he thought that the number of malpractise suits had been greatly reduced. He did not think there were a tenth as many now as there were 20 or 30 years ago. Some of these suits he remembered very well. One was the result of a mistaken diagnosis, an operation having been performed for supposed malignancy of the uterus when in reality pregnancy existed. This resulted in everyone being very

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careful in expressing an opinion in cases of supposed pregnancy. In giving medical testimony a man should always be willing to admit his inability to answer a given question. He should always be definite in his replies and should not get flurried, if he did so he was lost. He took issue with the statement that all lawyers and physicians were biased and he felt sure that those present would bear witness that certain men, whom he mentioned, were free from bias.

B. A. Gage agreed with T. A. Burke as to the necessity for intelligence on the part of the physician giving medical evidence. The wide divergence of opinion expressed by medical experts as to the condition of a patient or the probable outcome of a given case made the legal profession and the layman question the intelligence of the medical expert There was another field for cooperation between the lawyers and physicians and that was the proper drafting of laws relating to medical practise and similar subjects. A physician's training did not fit him for this work and legal aid was essential. This was shown by an instance which he related in which he had been retained by the State Board of Medical Registration. A doctor had been indicted for practising after the revocation of his certificate but owing to the improper wording of the State law relating to this matter, a conviction could not be secured. Since then the defect in the law had been remedied.

The election of officers for the ensuing year resulted as follows: Chairman, Judge Alexander Hadden; Vice-Chairman, R. B. Newcomb; Secretary, H. H. Drysdale; Councillor, T. A. Burke.

CLINICAL AND PATHOLOGICAL SECTION

The fifty-seventh regular meeting of this section was held Friday, January 5, 1909, W. B. Laffer in the chair.

W. G. Stern presented two cases of cured joint tuberculosis which were described in his paper read later in the evening.

W. B. Laffer exhibited a case of blepharochalasis (appearing in full on page 131). In the discussion H. B. Ormsby inquired as to the prognosis and treatment. In reply W. B. Laffer said that the injection of alcohol and tincture of iodin had been tried with the idea of causing a sclerosis. This had resulted in only a fair cure. Von Graefe and others had advocated operation, excising an elliptical piece of skin and suturing the edges of the incision. This was probably the best method of treatment and had given perfect results.

The program was as follows:

1. Wright's Vaccine Therapy, with Report of Cases, L. W. Ladd and H. C. Russ (appearing in full on page 135).

P. A. Jacobs, in the discussion, said that Wright, in the beginning, carried out the technic as just described but that in the past year or two he had modified it somewhat. Now the workers in his laboratory make equal suspensions in salt solution and sodium citrate. The glass beads were never used there in breaking up the clumps but they had found that this could be successfully done by sucking them up and down for 10 or 20 minutes in a very fine pipette. Occasionally a streptococcus could not be broken up and then it was ground up in a mortar. The measuring of the capacity of the pipette with mercury was an improvement. Wright employed an expert glass-blower who practically always made tubes of the same caliber and they were marked at about the same distance. The dipping of the emulsion and serum in cold water, when they were not in use, was also an advantage, but if one had a small incubator, known as an opsonizer, near at hand very little time would be lost. The results that had just been reported corresponded, be believed, with those obtained at Wright's laboratory. They had had little difficulty in Wright's laboratory, in growing the acne bacillus in ordinary bouillon in from four to five days. Branching forms of this bacillus were often seen in

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old but rarely in young cultures. They had used there the acne bacillus vaccine extensively and with excellent results, but all cases did not recover. He himself thought the cases were all due to the bacillus, the staphylococci being a contamination. They had treated a number of cases of endocarditis from which streptococci had been isolated but the results were not very good. All their vaccines were autogenous except in staphylococcic and tuberculous infections and in some of the gonococcic cases.

W. G. Stern asked at what stage they had given the vaccine and why at that particular time. Some authorities used the vaccine when the index was low. Others when it was high. He supposed a great deal depended upon the patient. Later he would refer in his paper to how some men gave tuberculin when the patient was doing well and others when he was doing badly. He wished to raise the question: At what point should one give the vaccine and why at that particular point?

S. L. Bernstein said he had at that time a patient with paresis under treatment with vaccine therapy, by J. J. O'Brien at the Massillon Hospital. A number of months ago the case showed typical symptoms of paresis but to his surprise the patient, when seen a few weeks ago, seemed much improved. He could not say whether this was a temporary respite the result of rest and absence of social cares or actually due to the vaccine. The improvement, even if temporary, was extremely interesting.

R. K. Updegraff felt convinced that there was something in this therapy. He was treating a case of staphylococcus infection due to boils which had progressed in spite of operative treatment. The process had involved the internal jugular and the condition had seemed hopeless. Vaccine therapy had then been tried. The temperature dropped and there was much improvement in a few hours. There was an active bacteremia, staphylococci being obtained from a blood-culture. The condition had lasted five weeks and no metastatic abscesses had developed, suggesting that the vaccine had at least controlled the activity of the organisms in the blood. The local accumulation of pus had cleared up very much although the temperature was still up. There was no doubt that the first injections gave good results. He believed if the man could withstand the infection a little longer he would recover. He wished to ask as to the dosage of the vaccines.

H. B. Ormsby asked if they had done any experimental work with eczema. Any gain in this respect from vaccine therapy would be most welcome.

L. W. Ladd, in concluding, said that the question of dosage was largely a matter of experimentation. Wright would say, "Control by the index." Others claimed as good results without observing it. It was impossible to treat many cases and at the same time check up the indices as they had done owing to the amount of work involved. Their results in acne had been as good when not using the index as with it. They began with a small dose and increased it in four or five days. Starting with a larger dose the negative phase would be longer and one would have to wait longer before increasing the dose. Wright said not to give vaccine in the negative phase. Personally he had done no work with the vaccine treatment for paresis and so could not say very much about it. He had been shown the organism claimed to be the cause of this disease. The vaccine treatment might be of use in some cases of septicemia and in others it might not. In one case he had been able temporarily to alleviate the pain and had caused a reduction in the fever notwithstanding an ultimate fatal result. He had given vaccine in a case of furunculosis following a breast abscess; later another abscess developed but without any temperature. It was thought that this contained little pus but at operation a considerable amount was found. He had had no experience with eczema. Ohlmacher had reported satisfactory results in psoriasis and in one of these a staphylococcus was found. He did not see why vaccine therapy should not help in cases of infected eczema. He believed it was always best to use as small doses of the vaccines as possible.

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2. (*a*) Eighteen Months' Experience in the Use of Tuberculin in the Treatment of Surgical Tuberculosis. (Appearing in full on page 117).

(*b*) Bismuth Injections for the Cure of Old Fistulae. (To appear in full in the JOURNAL).

H. O. Feiss, in the discussion, regretted that he had not seen the cases. An important thing had not been much dwelt upon, *viz.*, the question of diagnosis. It was often said that a case was one of tuberculosis, treated as such and cured, and yet the question would always occur, Was it really one of tuberculosis? In the use of bismuth no results should be classed as cures of tuberculosis unless radiographs had shown positive tuberculosis. As far as he knew, no real cures had been effected when the X-rays had shown positively a tuberculous condition. Was it fair to our patients to try all the many new things that had been proposed in the last few years for the treatment of tuberculosis? If we tried them all, could we tell what cured and what did not? Was it not much better to try the old mechanical methods first? It was interesting that a case of nitrite poisoning had been reported from the bismuth treatment. Now everybody had turned to the carbonate. How could we tell what the carbonate would do?

W. H. Tuckerman had tried tuberculin in several cases in which he did not have radiographs. One was a laryngeal case, scrapings of the growth showing definite tuberculosis. He believed it was entirely justifiable to try tuberculin or any other new thing on patients in whom everything formerly tried had proved useless but that in commencing treatment for a condition in which formerly good results had been obtained by the older remedies, he did not favor adopting at once the newer methods. He had used tuberculin in several cases of laryngitis. One patient had been sick two months, was losing weight rapidly and had grown progressively worse until all the anodynes possible were being used. Tuberculin, 1/1000 mg. was given and repeated once a week. Definite improvement then occurred. In one month all anodynes were discontinued and later the patient was able to return to work. In several other cases he had had no results at all. Anyone who had had to take care of such cases would be willing to try anything offering any hope at all. He had been treating a patient with acne who had also tuberculous cervical glands. Tuberculin was tried for three or four months and the acne disappeared. He did not know what had effected the cure but he had not employed an autogenous vaccine.

G. I. Bauman thought that both tuberculin and bismuth had been given sufficient trial to warrant their use in at least some cases but possibly not in all. He understood the speaker to say that he had never seen a reaction from 1/1000 mg. of tuberculin. He himself had seen a marked result from this amount in an adult and would not dare to use so much in a child. He had used the same sort of preparation but his had been made in Pennsylvania, not in Germany. He had seen good results from bismuth in old sinuses. He had treated one due to syphilitic myelitis of the tibia for at least a year, then he used bismuth paste and the sinus healed after a few applications. He was also using it with benefit in two tuberculous sinuses, in one of three years duration there had been considerable improvement.

W. H. Weir asked if the speaker had had any experience with this treatment in tuberculosis fecal fistulae. This condition was usually so hopeless that any means that would lead to a cure would be a blessing.

P. A. Jacobs agreed that tuberculin might be used in congenital tuberculosis without the determination of the index. Most cases of joint tuberculosis were associated with pulmonary lesions and then the use of tuberculin was wrong because the patient inflicted upon himself one negative phase after another. The determination of the index in joint cases was of value if an autoinoculation was induced and then four or

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five specimens of blood were taken and examined two, four and six hours afterward. It was also of use after Bier's hyperimic treatment. A change in the index was of value not only in diagnosis but also in the prognosis as to a cure. In St. Mary's Hospital this was done in tuberculous cases and if there was an autoinoculation the cast was replaced and the patient again put on tuberculin.

W. G. Stern, in conclusion, said that if a diagnosis of tuberculosis could not be established without the opsonic index or the X-ray some of the old masters would turn in their graves. These were of great assistance and most of his cases had been diagnosed by means of the tuberculin. He did not think there was any doubt that all the cases he had described were tuberculous. He thought we stood in the way of progress if we did not use the newer methods but that we did our patients an injustice if we did not try the older methods too. He had stated in his paper that he had tried the old without success. He had never had a reaction from 1/1000 mg. of tuberculin although he understood A. S. Maschke had had. He had followed Trudeau's instructions, to use such doses as did not give a reaction, and he began with a dose of 1/10000 mg. He had had no experience with tuberculous fecal fistulae. P. A. Jacobs had said that pulmonary lesions contra-indicated the use of tuberculin. Many of the cases he had reported in this paper had pulmonary lesions. One of the cases he had shown had had an old tuberculous pleurisy with thickening of the pleurae, this had almost disappeared and there was other improvement. His results with tuberculin had been good. He had not used it in the negative phase but had waited until later. The question was, When were these patients cured? When the opsonic index did not fluctuate? Long before this test was discovered Hoffa pronounced his cases cured when there was no increase of symptoms and this rule seemed as good as the other.

3. Thermovibrassage: Description of Apparatus; Brief Summary of Experimental Work; Report of Sixty Clinical Cases, F. W. Hitchings and J. B. Austin. The apparatus had been described by F. W. Hitchings in a preliminary report published in the *Journal of the American Medical Association,* 1906, Volume XLVII, page 1376. It consisted essentially of a heat coil arranged in a metal case the size of an ordinary ball vibratode. The case screwed on the vibrator shaft and part of the current running the vibrator motor could be shunted through the short cable to the heat coil wire at will by turning a second, or "heat" switch on the vibrator bail. In this way a powerful, compact, perfectly controlled and easily replacable heating unit was obtained. The range of temperature was unlimited for therapeutic purposes

The combination of heat and vibrassage was found to be of chief value in treating more or less localized functional conditions although in certain cases, in which an organic cause was present, with referred pain due to nerve irritation, relief was obtained by treating the distant areas until the organic cause could be removed by operation or by the use of orthopedic apparatus. The following cases occurred consecutively, mostly in private practise. Among them were many instances in which thermovibrassage gave relief when heat and massage separately and other measures failed. There were also a few instances in which vibrassage gave little or no relief, while thermovibrassage gave either prompt and complete relief or at least much more relief, the two forms of treatment being compared on the same patient. The following summary of the clinical cases was then given:

Trifacial Neuralgia: Total number of cases, 18 (seven patients). Number with immediate and complete relief from one treatment, 14. Number with almost complete relief with a second treatment given 24 hours later, one. Number with very transitory or no relief, three.

Pain Associated with Dental Irritation: (Cases treated and histories furnished by H. M. Griffith, D. D. S.) Total number of cases, seven.

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Number of cases in which pain was completely and promptly relieved by operation followed by thermovibrassage, four. Number of cases in which thermovibrassage alone completely relieved, three.

Intercostal Neuralgia: One case. Two treatments in 48 hours gave complete and permanent relief. Vibrassage was first tried as a control and gave no relief.

Interscapular Neuralgia: Total number of cases, two.

CASE 1: Complete and permanent relief after two treatments, three in all given.

CASE 2: Complete relief after one treatment, no return in three weeks, later history unknown.

Torticollis: Total number of cases, five (four acute, one chronic). Complete relief in all the acute cases with three, one, one and seven treatments respectively. Partial relief in the chronic case after 10 treatments given in one month. (Complete disappearance of a tender point between the scapulae which the patient had had for 20 years, no recurrence in five months.)

Sciatica: Total number of cases, six.

CASE 1: Caused by pressure from large multilocular broad-ligament cyst. Previous duration of sciatic pain, three months (constantly present for 10 days previous to treatment). No return in two weeks before cyst was removed by W. E. Lower. No recurrence of pain in seven months since operation.

CASE 2: No apparent cause; first attack; 36 hours duration; one treatment gave relief for one hour. Then acute exacerbation was followed by complete relief, and no recurrence in 11 months.

CASE 3: Caused by contracted foot following infantile cerebrospastic diplegia. Seen in consultation with W. G. Stern. Plates had given partial relief, but patient had had increasing pain for two months. Four treatments gave complete relief for 26 months (plates worn in this time). Then a recurrence was completely relieved by one treatment, strapping foot with plaster, and altering the plates.

CASE 4: Cause unknown. Patient referred by Henry S. Upson. Notes imperfect and case mentioned only because thermovibrassage gave much more relief than vibrassage and duration of relief was much longer. Relief was not complete.

CASE 5: Attack began with patient catching cold. Case reported through courtesy of C. F. Hoover and kidness of C. L. Cummer. Pain severe, spasmodic, duration nine weeks (last four weeks in Lakeside Hospital). In one month 13 treatments. No more severe pain after second. Steady improvement. Eventually complete freedom from pain. Foot now drags a little on climbing stairs (one year later).

CASE 6: Attack of about four months duration. Caused by flat foot. One treatment gave complete relief for about a week when plates were made under W. G. Stern's directions. Since then no recurrence.

Lumbago: Total number of cases, four.

CASE 1: Patient referred by F. E. Bunts. Previous duration, two months. Complete relief after four treatments. No recurrence in three months. Later history not known.

CASE 2: Previous duration, three days. One treatment gave almost complete relief. No other needed.

CASE 3: Pain for two weeks. Pain stopped after six treatments in 11 days. Relief after each, but effect not very marked.

CASE 4: Pain for three days. Three treatments gave complete relief. Recurrence some months later while patient was away.

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Coccycodynia: One case. Six treatments in nine days were followed by complete relief for four months. Since then mild recurrences at intervals. Large air cushion used after treatments were finished.

Neuritis: Total number of cases, two.

CASE 1: Ulnar neuritis of traumatic origin of 2½ months duration. Patient referred by E. B. Rhodes. Seven treatments gave absolutely no relief nor did anything else. Operation advised and refused.

CASE 2: Brachial neuritis of rheumatic origin. Duration, three months. Onset gradual. Pain moderate. Patient still being treated with rapid progress under thermovibrassage, increased water consumption, aspirin, and potassium acetate.

Strains, Bruises and Fractures: Total number of cases, seven. Diminution in swelling and tenderness, and more or less relief from pain in each case.

Insomnia: Total number of cases, three.

CASE 1: Complete and permanent relief after nine months previous duration.

CASE 2: Relief for two months, then relapse; cause not removable.

CASE 3: Relief for only five weeks in a very obstinate case of 10 years' duration.

Miscellaneous Cases: Total number of cases, four.

CASE 1: Caisson disease (reported through the courtesy of Henry S. Upson from the Neurological Clinic of Lakeside Dispensary. Eight treatments in three weeks with 50% functional improvement. Duration not known.

CASE 2: Osteoarthritis of shoulder of nine months duration. Partial relief given by six treatments; patient could raise her hand 12½ inches higher, and reach middle of back. Late history unknown.

CASE 3: Pain in breast at site of abscess which developed 30 years previously. Pain brought on by use of pectoral muscles. On three occasions single treatments gave complete relief until the patient overdid again.

CASE 4: Rupture of abdominal muscles (?) near posterior superior spine of ilium. Seven treatments gave temporary relief only. The same was true of strapping with adhesive plaster, wearing a broad canvas belt and local injections of chloroform on two occasions. Patient advised to change occupation.

In the report of the Clinical and Pathological Section meeting for December, appearing in the January issue, page 43, line 35, the words "thrombosis of" should read "hemorrhage from."

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Book Reviews

Surgery: Its Principles and Practice. In five volumes. By 66 eminent surgeons. Edited by W. W. Keen, M. D., LL. D., Hon. F. R. C. S., England and Edinburgh, Emeritus Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Volume IV. Octavo of 1194 pages, with 562 text-illustrations and 9 colored plates. Philadelphia and London: W. B. Saunders Company, 1908. Per volume: Cloth, $7.00 net, half morocco, $8.00 net.

Among the more important subjects taken up in this volume are Hernia and the surgery of the Genito-Urinary Tract, Intestines and Vermiform Appendix. The chapter on Hernia is by Coley, whose large experience qualifies him to speak with authority. He recommends the Bassini operation as, on the whole, the best procedure for the radical cure. Local and spinal anesthesia are not favorably spoken of.

A short chapter on the Examinations of the Urine in Relation to Surgical Measures is contributed by Edsall. He does not speak in an encouraging way about the newer methods of determining the functionating capacity of the kidneys, and prefers to rely upon the older and simpler methods. Cammidge's test for pancreatic disease is not regarded as reliable.

The chapters on the Surgery of the Kidneys, Bladder, Prostate, Penis and Urethra are excellent reviews of the subjects. Young strongly advocates his "Conservative Perineal Prostatectomy," and regards it as the safest operation, "indeed much safer than the use of the catheter."

Murphy contributes the chapter on Appendicitis. In regard to treatment, the following statement, referring to early operation, should be impressed upon all practitioners, "To me there appears to be no excuse, no explanation, no logical process for, no justifying hope in, delay in this disease. Procrastination under these circumstances we do not regard as a manifestation of knowledge, experience, judgment or true conservatism."

The volume contains two chapters on the Surgery of the Eye and of the Ear. In the judgment of the reviewer these subjects are not appropriately included in a work on general surgery; the space can be much better utilized.

Military and Naval Surgery are discussed by O'Reilly and Rixey; their articles are thoroughly modern and the experiences in the Russo-Japanese war have been utilized in the preparation of the text.

A somewhat novel chapter is the one on Tropical Surgery by McCaw.

The closing article on the Influence of Race, Sex and Age in Surgical Affections, by Rodman, is of interest and value and contains much statistical information.

As in the previous volumes, the illustrations are numerous and good and minor errors in the text are very few.

Nervous and Mental Diseases. By Archibald Church, M. D., Professor of Nervous and Mental Diseases and Medical Jurisprudence in Northwestern University Medical School, Chicago; and Frederick Peterson, M. D., Professor of Psychiatry, Columbia University. Sixth edition,

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revised and enlarged. Octavo volume of 944 pages, with 341 illustrations. Philadelphia and London: W. B. Saunders Company, 1908. Cloth, $5.00 net, half morocco, $6.50 net.

The popularity of this book is thoroughly evidenced by the demand for repeated editions, six of which have appeared since January, 1899, and this popularity is well-merited. The present, the sixth, edition perpetuates the policy of its predecessors, is printed in good type, on good paper, and clothed in a very satisfactory binding.

The matter of the text is written in a very readable, concise style, and fulfills admirably its purpose as a textbook for the student and general practitioner. It is certainly not to be hoped that one volume of 945 pages shall thoroughly cover the combined subjects of neurology and psychiatry as at present understood. The reviewer was considerably surprised to find no comment upon the work of Flexner and his associates in the establishment of the serum treatment of cerebrospinal meningitis; on page 87, referring to meningitis, is found the following: "There is some reason to hope that an antitoxin may be developed to combat the epidemic form."

An occasional typographical error was noted as well as certain shortcomings in the index. In the revision considerable amplifications have been introduced both in the section on nervous diseases and insanity, which serve to make of this new edition a valuable one volume book.

Seven Hundred Surgical Suggestions. Practical Brevities in Surgical Diagnosis and Treatment. By Walter M. Brickner, B. S., M. D., Assistant Adjunct Surgeon, Mount Sinai Hospital, New York; Editor-in-Chief, American Journal of Surgery, Eli Moschcowitz, A. B., M. D., Assistant Physician, Mount Sinai Hospital Dispensary, New York, and Harold M. Hays, M. A., M. D. Third Series. Duodecimo; 153 pages. New York: Surgery Publishing Company, 92 William Street. Price, semi-de-lux, $1.00; full library de lux, ooze leather, gold edges, $2.25.

The former editions of this little work have been recently reviewed in these columns. That a third edition has been called for within two years speaks well for the demand which it has met. The present volume has been considerably enlarged and contains a great deal of valuable information within a small compass. It is well worthy the perusal of any practitioner.

The Changing Values of English Speech, by Ralcy Husted Bell. Cloth, gilt top, $1.25 postpaid. Hinds, Noble & Eldrédge, 31 West 15th Street, New York.

The author, in this readable little volume, briefly traces the early origin of the English language and notes some of the later sources from which its vocabulary has been recruited. He deplores the fact that many of the recent accessions are bastard words, ill-adapted to the purpose for which they are intended, but nevertheless called into being by the necessity of modern progress. He refers in very uncomplimentary terms to the literary efforts of the average professional man, such as the lawyer or physician, and says, "In a word, so-called 'class journalism'

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and class contributions are great corrupters of decent speech." His chapters on Distinctions in Word Meanings may be read with profit as they point out shades of difference in the meaning of similar words which are apt to be ignored by most persons. He has also some very caustic comments upon the efforts of those who are urging the adoption of a simplified spelling.

Principles and Practice of Physical Diagnosis, by John C. DaCosta, Jr., M. D., Associate in Clinical Medicine, Jefferson Medical College, Philadelphia. Octavo of 548 pages, 212 illustrations. Philadelphia and London: W. B. Saunders Company, 1908. Cloth, $3.50 net.

This work comprising 550 pages and seven subdivisions is a most complete and practical presentation of modern methods of diagnosis. The original illustrations are very distinct and of especial value, amply exemplifying the text. After the opening section, devoted to methods and technic, the examination of the thorax, the bronchopulmonary and cardiovascular systems are fully considered and the examination of the abdomen and abdominal viscera forms the closing chapter of the book; each subject is discussed in a most thorough manner and a complete index follows. The work throughout is a most excellent one, and to be commended in every respect as one of the most satisfactory upon the subject.

Medical News

W. T. Barger has opened an office at 1110 Euclid Avenue.

J. E. Cook is taking a vacation of several months in California. During his absence R. A. Bolt is taking his office work from 2:30 to 5 P. M.

The Cleveland Medical Library Bridge Whist Club met Wednesday, February 10, at the Library. A "Dutch lunch" was served as usual.

The Charity Hospital Medical Society met Wednesday, February 13th. The program was as follows: A Case of Tetanus with Recovery, L. A. Wheelock; The International Tuberculosis Congress, J. H. Lowman.

The St. Alexis Hospital Alumni Association met at the Hollenden, Thursday evening, February 4th. The following program was presented: Certain Uncommon Forms of Abdominal Pain, B. Peskind; Anemia due to Nasal Hemorrhages, M. Metzenbaum; Report of Cases: Neuropathic Edema in Infancy, Dangers of Narcotics in Labor, C. E. Ward.

The Lakeside Hospital Medical Society held its thirty-fifth regular monthly meeting, Wednesday, February 24th. The program was as

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follows: (1) Presentation of a Case of Aneurism of the Arch of the Aorta in a Patient Aged Twenty, J. MacLachlan; (2) Presentation of a Case of Syphilis of the Larynx, A Case Showing the Result of Paraffin Injection for Postoperative Deformity, and a Case Showing the Result of a Radical Mastoid Operation, W. B. Chamberlin; (3) Presentation of a Case of Myasthenia Gravis, C. F. Hoover; (4) Exhibition of a Case of Aneurism of the Femoral, R. Bishop; (5) Presentation of a Case of Syringomyelia, B. C. Barnard; (6) Report of a Case of Hematoma of the Ovary and Report of an Operation for a Gauze Sponge Left in the Abdominal Cavity, H. Robb. (7) Presentation of Pathologic Specimens, Carcinoma of the Esophagus and Bilateral Granular Kidneys, S. Haas.

The American Journal of Surgery in its March issue has the entire original subject matter contributed by New York City surgeons of note and a number of new operations are first described therein. Among the contributors are: Howard Lilienthal, Jas. P. Tuttle, Jas. V. Young, Willy Meyer, A. E. Sellenings, W. M. Brickner, J. A. Hartwell, T. F. Hopkins, Jas. P. Warbasse, H. B. DeLatour, S. W. Bandler and Wm. K. Simpson.

L. Duncan Bulkley will give a tenth series of Clinical Lectures on Diseases of the Skin at the New York Skin and Cancer Hospital on Wednesday afternoons commencing March 10, 1909, at 4:15 o'clock. The course will be free to the medical profession.

A warning comes from Canton, Ohio, in regard to the operations, in that vicinity, of a swindler who canvasses the medical profession. He is short, dark and smooth faced and claims to be an agent for a Philadelphia insurance company. He promises to turn over some work to the doctor and then attempts to collect a premium although he has no connection with the company he claims to represent.

H. B. Ormsby, T. A. Burke, E. O. Houck and F. J. Schmoldt have moved their offices to 446 Rose Bldg.

The Huron Road Hospital has recently been entirely renovated and will be reopened about April 1, 1909. The trustees have appointed the following visiting staff composed of both homeopathic and regular members: Honorary staff, G. J. Jones and D. H. Beckwith; visiting physicians, H. Pomeroy and E. P. Carter; visiting surgeons, W. T. Miller and R. H. Birge; visiting gynecologist, J. C. Wood; visiting ophthalmologist, W. A. Phillips; visiting otologist and laryngologists, G. H. Quay and H. G. Sherman; physiologist, David Marine; pathologist, H. C. Russ; Roentgenologist, W. C. Hill; member of auxiliary staff, Thos. George.

The following letter from the Secretary of the Ohio State Board of Medical Registration to the Editor of the Cleveland News shows what valuable aid may be rendered in a good cause by a newspaper with the interests of the public at heart:

To the Editor:—Permit us to congratulate you upon the successful issue in the anatomical museum cases. Your efforts for the uplifting of the public could not, in our opinion, have been better directed.

We also congratulate you and Cuyahoga County upon having for your Prosecutor one who has the will and finds the way to do his duty.

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We are also gratified to know that not one man in the twelve who saw the suggestive display, offered by the Boyd Medical Institute, placed the stamp of his approval upon it.

The demand that such concerns be eliminated from your community is indicative of a healthy moral atmosphere and cannot but reflect credit upon those who have been responsible for this prosecution.

In behalf of the Medical Board allow me to thank The News for the valuable assistance rendered in bringing to light the names of physicans who have prostituted their profession by their connection with such a concern.

We hope you will continue the good work of exposing those who are unworthy and that we may be given the opportunity of assisting you in any cases in which our profession is concerned.

Clean medical practice is more important than clean water and clean milk, and just as necessary as fire and police protection.

Very respectfully,
GEORGE H. MATSON, Secretary.

Wm. F. Waugh, 1424 East Ravenswood Park, Chicago, is collecting material for a paper upon Atropin as a Hemostatic. He would be obliged to any of our readers who would send him notes of their experience with this remedy.. He is particularly anxious to receive adverse as well as favorable reports.

Deaths

H. C. Long, of this city, died February 23.

Moses Jones, of Oak Hill, died February 2, aged 36.

Hjalmar Nyvall, of this city, died February 3, aged 51.

Constantine Markt, Hamilton, died January 28, aged 76.

Wm. J. Sullivan, of Urbana, died February 13, aged 84.

J. H. W. Pomeroy, of Kipton, died January 20, aged 44.

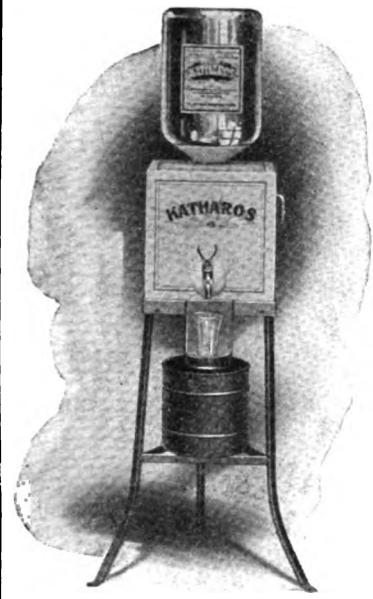
Frank C. Hoskins, of this city, died February 19, aged 30.

Frank G. Taylor, of Reynoldsburg, died January 29, aged 57.

Jas. A. Van Winkle, of Spring Valley, died February 11, aged 44.

Horace Logee, of Linesville, Pa., at one time of this city, died February 6, aged 75.

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See page 20.

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The Cleveland
Medical Journal

VOL VIII APRIL, 1909 No 4

Modes and Sources of Infection in Tuberculosis

By MAZŸCK P. RAVENEL, M. D.,
Professor of Bacteriology, University of Wisconsin

This subject is divided into two main propositions: first, the modes of infection, and second, the sources of infection. Taking up first the modes of infection, I might go into many details at a length which would be wearying to you. For the practical purposes of discussion we will consider only the two great modes of infection, viz., the respiratory tract and the digestive tract. In regard to the sources of infection I might again go into wearisome detail, but for our purposes we may consider that there are only two chief points to be studied, viz., the human being and the tuberculous cow. I will first consider the modes of infection.

It is easy to understand how all the early workers attributed infection to the respiratory tract. Tuberculosis is, of all diseases known, most prone to affect the lungs both in man and in animals. The early experiments after the discovery of the tubercle bacillus were all made with one fatal defect, viz., no attempt was made to prevent the swallowing of the inhaled material, whether this material entered through the nostril or through the mouth. Perhaps the experiment of Cornet has had more effect than any other one in fixing the belief of respiratory infection. Cornet placed tuberculous sputum on a carpet. In the same room he placed upwards of 40 guinea pigs on shelves at different heights above the floor. The room was then entered and the sputum broken up and swept about with a stiff broom, the dust of course flying into the air. A large proportion of these animals became tuberculous and the experiment was deemed conclusive as showing infection through the respiratory tract. No effort was made to prevent the swallowing of the inhaled material, and there is no

Read before the Academy of Medicine of Cleveland, February 19, 1909

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proof whatever that the guinea pigs which succumbed did not receive their infection through the swallowed material. In the human being we are told that upwards of a pint of fluid passes backward from the nasopharynx into the stomach every 24 hours, even during health, an amount which is increased when there is any irritation of the parts; consequently, material which is inhaled passes into the stomach, and infection takes place from the intestinal tract.

We must, however, consider other portions of the digestive tract than the intestine. I am inclined to believe, on very strong evidence, that the tonsil is a frequent portal of entry for infections of various kinds, as well as the tubercle bacillus. The tonsils are situated near the point where the respiratory and digestive tracts cross each other and are consequently exposed to any germs which enter either through the mouth or through the nose. Studies made on this point are exceedingly interesting. A number of observers have shown that the tonsils are a frequent portal of infection in tuberculosis. Of 1671 cases collected from literature 88, or 5.2%, showed primary tuberculosis. When the examination is made by the systematic inoculation of animals even a higher percentage is obtained. Thus Lartigau, in a series of 75 cases, found 12, or 16%, to be tuberculous, and many similar experiments can be quoted. Experimentally it has been demonstrated at the laboratory of the State Live Stock Sanitary Board of Pennsylvania that animals are readily infected through the tonsils. A single application of tubercle bacilli to the back of the mouth and tonsils in swine, without injury to the mucous membrane, always brought about primary tuberculosis of the tonsils followed promptly by involvement of the submaxillary and cervical glands and extensive disease of the lungs. Baumgarten and Orth, as early as 1884, observed that animals fed with tuberculous material constantly showed primary tuberculosis of the tonsils. I have demonstrated in swine and in monkeys that infection takes place readily through the tonsils and that extensive tuberculosis of the lungs follows rapidly without involvement of the intestine. The swine on which I experimented were given tubercle bacilli on bread soaked in milk. The monkeys were fed banana infected with tubercle bacilli, the object in both cases being to avoid any possible injury to the mucous membrane, our effort being to demonstrate infection through the unbroken surfaces. On this point I may say that the observation made originally by Dobroklonsky has been confirmed in every part of the world, and

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I believe that no one at the present time questions the permeability of the unbroken mucous membrane by the tubercle bacillus. Dr Theobald Smith has recently published a paper giving the report of three cases in which tonsils removed from children during life showed the bovine tubercle bacillus. It appears to me that it scarcely needs an argument to prove that these children obtained their infection from the use of tuberculous milk. May I give you an outline of further experiments conducted by myself to demonstrate the passage of the tubercle bacilli through the unbroken mucous membrane? These experiments are not more conclusive than those of other workers but it is sometimes more interesting to learn firsthand of such work.

Our first experiments were done in 1903. Dogs were kept under observation and fed on soft food for upwards of 10 days, the idea being to rid the intestinal tract of pieces of bone or dirt and rough material such as is often found in the canal of dogs. This object was still further carried out by giving a purge of castor oil, so that when the experiment began we were quite sure that there was no abrasion in the mucous membrane of the intestinal tract. A single meal was given by means of a stomach tube, consisting of equal parts of melted butter and warm water thoroughly shaken, into which a pure culture of tubercle bacilli was put. Within three and one-half to four hours afterward, the dogs were chloroformed. As much chyle as possible was collected from the thoracic duct, and the mesenteric glands finally removed. The material thus collected was examined under the microscope and tubercle bacilli demonstrated in a number of cases. However, for the chief proof we relied on the intraperitoneal inoculation of guinea pigs, by which we showed that in eight out of 10 animals experimented on, tubercle bacilli had penetrated the intestinal wall in large numbers during this short period of digestion. The intestine was examined macroscopically and microscopically, but no lesions could be detected.

Dr John Reichel and myself have more recently carried out an extended experiment along this line, using guinea pigs. In order to avoid the objection which has been raised, that a possible aspiration of the tubercle bacilli took place even though a stomach tube was used, we did a celiotomy, drawing the stomach into the wound and injecting our tubercle bacilli mixed with cream directly into the organ. Some of the animals were killed after three and one-half hours, others living considerably longer. The lungs were removed carefully, washed in distilled water, and

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ground into an emulsion which was injected into the peritoneal cavity of other guinea pigs. Of the 65 animals operated on we obtained positive results in 56%, proving, it appears to me, that tubercle bacilli not only penetrated the healthy intestine, but also reached the lung within the period of digestion.

Stronger evidence has since been given by Rabinowitsch and Oberwarth, who used swine for their experiments. They first established a gastric fistula, through which the animal was nourished. A second operation occluded the esophagus completely, after which tubercle bacilli were introduced into the stomach. In 22 hours tubercle bacilli were found in practically every organ in the body.

Koch has stated that primary intestinal tuberculosis is rare. As an actual fact, the reports of the pathologists from different parts of the world, and even from different portions of the same country, vary greatly on this point. In Germany, Wagener, Hof and Heller find it quite commonly. Nebelthau in Halle found primary intestinal tuberculosis in 19% of 26 autopsies. Lubarsch in 297 autopsies found 21.2% of primary intestinal tuberculosis. In Berlin, von Wagener, at the Bethanien Hospital, from October, 1903, to October, 1904, found in 67 autopsies on children from one to 15 years old, primary intestinal tuberculosis in 16%, while at the Charité, from October, 1902, to December, 1903, Orth found in 131 children only 1.5% of undoubted primary intestinal and mesenteric disease. Edens, among 31 tuberculous children at the Bethanien Hospital, seen from October, 1904, to October, 1905, found 35.5% of primary intestinal disease, while Orth during the same years found only 8% in 77 children (Rabinowitsch). At the same hospital, from October, 1905, to October, 1906, Edens found 18 cases of primary intestinal tuberculosis in 409 autopsies, at all ages. Of the 74 children from one to 15 years old, 21 of whom were tuberculous, 10 (47.6%) showed primary intestinal involvement. Of 319 cases from 15 to 90 years old, 130 were tuberculous, and eight (6.2%) showed primary intestinal involvement. In England, of 1560 autopsies on children, primary intestinal disease was found 290 times, or 18.6%. In Copenhagen the figures have been found to run about 10% for all cases of tuberculosis. Harbitz, in 117 cases, found tuberculosis primary in the digestive tract in 22%. All these observers find a number of cases in which it is impossible to tell the primary seat of the disease. It is fair to presume that a certain number of these cases were primary in the intestine, which would make our

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figures higher. Most assuredly it can not be claimed that primary intestinal disease is a rare or negligible quantity.

At the recent Congress in Washington where Koch again made the statement that primary intestinal tuberculosis was rare, and quoted certain figures, he was ably answered by Fibiger, of Copenhagen, who showed that Professor Koch was not giving all the evidence at hand. For instance, Benda, of Berlin, who in 1903 stated that he had found only two or three cases in 18 months in 1905 said that the frequency of intestinal tuberculosis was greater than he originally thought. From 1899 to 1901 only seven cases of primary intestinal tuberculosis were reported in the Berlin Urban Hospital among 75 tuberculous children. However in 1905 Orth found six cases in 77 children, although previously he had found only two in 33. Baginsky, who in 1901 had not observed a single case of intestinal infection, reported six cases in 1902, and 30 cases among 389 children in 1905. One of two conclusions is therefore forced on us: first, that pathologists find primary intestinal tuberculosis when their attention is directed to a careful examination for it, or else that the weight of Koch's authority, when he said in 1901 that there was no danger of transmission from cattle to man, led to carelessness in the use of milk and that the death rate from this form of tuberculosis has consequently increased. I am thankful that no such charge can be laid against me, and I feel that every one in the audience feels about this matter as I do.

With our present knowledge I do not think that we can deny that respiratory infection is responsible for the greater number of cases of tuberculosis. I believe that Flügge has done a great service in demonstrating the danger of the spray ejected by consumptives in coughing, sneezing, and the pronunciation of certain letters, this spray containing tubercle bacilli. While some of his experiments undoubtedly demonstrate respiratory infection, many of them do not exclude the swallowing of the material first inhaled. It is therefore a wise thing to instruct consumptives always to protect the mouth by means of paper handkerchiefs.

The sources of infection may be briefly considered. At the present time we must acknowledge that man is the greatest danger to man, and that the sputum of consumptives is the chief source of the spread of the disease from one person to another, no matter how it gains entrance to the body. The great point is the consideration of the danger to man from the milk of tuberculous cattle. So many misleading statements have been pub-

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lished, even in medical journals, regarding this matter, that I wish to state the exact words of Koch. In 1901 he said:

1. "Human tuberculosis differs from bovine and cannot be transmitted to cattle."

2. "Though the important question whether man is susceptible to bovine tuberculosis at all is not yet absolutely decided, and will not admit of absolute decision today or tomorrow, one is, nevertheless, already at liberty to say that if such a susceptibility really exists the infection of human beings is but a very rare occurrence. I should estimate the extent of infection by the milk and flesh of tuberculous cattle, and the butter made of this milk is hardly greater than that of hereditary transmission, and, therefore, do not deem it advisable to take any measures against it."

In Washington the other day he said: "Preventive measures against tuberculosis should therefore be directed primarily against the propagation of human tubercle bacilli." This ground is exactly what practically every one in the world has always held. Koch's first statement in 1901 was a colossal blunder which was so easily disproved that it raises a serious question as to the value of any other opinion stated by him. Innumerable workers have shown that human tuberculosis can be transmitted to cattle and it is astonishing that a man of his ability and scientific training should have made such a misstatement. In regard to the transmission of bovine tuberculosis to human beings, you may remember that in 1902 I reported the finding of bovine tubercle bacilli in the intestines of a child, proving for the first time that the bovine tubercle bacillus does cause the death of children. At the same laboratory this proof has been repeated a number of times since. The British Government appointed a Royal Commission to study the question, and the German Government appointed an Imperial Commission, composed of 25 of the leading professors of the German Empire, including Koch himself. The English Commission studied 60 cases, 14 of which, or 23%, proved to be due to the bovine germ. Of these cases 28 had histories pointing to infection through the digestive tract, and of these 46 4/10% showed infection by the bovine germ.

The German Commission, out of 138 cases examined by them, found 22, or 16%, to be bovine. Of this number, 84 were cases of tuberculosis of children. Of these, 63 showed infection by the human bacillus, and 21, or 25%, infection by the bovine germ.

The summary shows that, of 306 cases of human tuberculosis which have been investigated, 63, or a little over 20%, were caused by the bovine type of bacillus. The reports of both of

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these Commissions recognize without question that the bovine bacillus is a real menace and a real cause of death to human beings. We are unable at the present time to fix exactly the proportion of cases due to the bovine germ, but it is certainly far from insignificant.

Koch, in Washington, stated that he had never denied the possibility of transmission from cattle to man. He certainly gave this impression to the public, however, and in so doing did incalculable harm. He has now shifted his ground and in Washington claimed that the bovine tubercle bacillus did not cause consumption of the lungs. Years of work must be carried out to prove or disprove this statement. While there is an academic interest, it makes no difference to the grieving mother or father who sees a dying child whether the cause of death is intestinal tuberculosis or lung tuberculosis. It is almost certain that the bovine tubercle bacillus changes in the human body so that its characteristics can not be recognized. It has been definitely proved that the mammalian bacillus can be changed into the bird bacillus, the differences between which are much greater than those between the human and bovine.

It has been well said of Koch that "he has dignified his error with the trappings of a great reputation." I wish here to raise a protest against the common opinion that the *ex parte* statement of a man who has done great work must be accepted without argument. Koch announced his discovery of the tubercle bacillus in 1882, after having done an enormous piece of work and isolated cultures from a number of sources. It remained for an American to point out in 1896 that there was a distinct difference between the two germs as ordinarily found, and Koch did not recognize this distinction publicly until 1901. It was then certainly as much as 14 years after Koch's discovery before he found out that human and bovine bacilli possess certain differences, and 19 years before he acknowledged it. The demonstration that the bovine bacillus could cause the death of human beings was also given by an American, at least two years before the German Commission. Does it seem then that Koch's word should be the final one to be accepted on such matters? It is a great error to take this stand; even the greatest man is not infallible.

In closing let me say that I believe the evidence brought forth proves conclusively that the digestive tract as a portal of entry for the tubercle bacillus is very much more important than

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has ever been heretofore supposed, even though for the present we must acknowledge that the respiratory tract is the chief avenue of invasion. I do not doubt that man is the chief source of danger to man, but tuberculous cattle unquestionably play a very important part in the spread of the disease to human beings. The man who tries to eradicate the disease must eradicate both sources of infection, and the fact that we are attempting to repel an attack from more than one source should spur us on to greater and more strenuous endeavor, for only so will this terrible scourge of the human race ever be brought under control.

The Medical Expert

By T. A. BURKE, M. D., Cleveland

There is no subject which combines interest and instruction in a higher degree than the study of legal medicine, and its importance can best be understood when we consider that property, reputation, liberty and even life itself is many times dependent upon the proper settlement of some medicolegal question. What do we understand by legal medicine or medical jurisprudence? Legal medicine is the application of the principles and practise of medical science to the solution of legal questions and may be classified briefly as follows:

1. Questions arising out of the relation of sex. Impotence and sterility, pregnancy, legitimacy and rape.

2. Injuries inflicted on the living organism, infanticide, wounds, poisons, injuries and death.

3. Questions arising out of disqualifying diseases, different forms of mental alienation.

4. Those arising out of deceptive practices, malingering, feigned diseases, simulation.

5. Questions of a miscellaneous character, viz., age, identity, survivorship, life and accident insurance and the relation of the physician to the law.

It is this last division that I wish to consider, particularly as regards the medical expert witness. Not much is known of the application of medical knowledge to the ends of jurisprudence in the earlier historic times. Forensic medicine does not seem to have been practised as such until the sixteenth century. This is

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not so amazing as seems at first thought, when we stop to consider that accused persons were subjected to trial by ordeal, such as holding in the bare hands hot irons, plunging the body into boiling water and the like procedures. Legal medicine had no place in such cases. To correct some of these abuses, the Emperor of Germany, Charles V, promulgated, in 1553, the Caroline Code in which are laid down rules for calling medical witnesses. This led to the beginning of a medicolegal literature, but it was not until the seventeenth century that we find the first recorded cases of experts testifying in criminal cases. From that time there was a gradual development of the subject, which did not assume its present important status until the nineteenth century, but from the beginning the calling of medical witnesses was unsatisfactory to court, to jury, to attorney and particularly to the physician himself.

This is a proper time to discuss this subject in the hope of evolving a remedy. I make bold to state the fault is not with the medical witness altogether, the fault is with the system. Let me review briefly the position of the medical expert in the conduct of a case. In this country and in England, expert witnesses are called by one side or the other, usually by both. Let us observe the medical witness first in relation to the jury. Here we have a real difficulty in making clear to untutored minds the many technical points in the case, especially in language intelligible to the untrained. What is the attitude of the attorneys, whether for the prosecution or the defence, in the relation to the medical expert? The attorney's object is to win his case by the use of all the legitimate methods allowed by the rules of evidence. He regards the witness with an eye single to the purposes of his case. His aim naturally is to bring out the points which favor his contention and to minimize to the last degree the other side of the question. It is the aim of the cross-examination to overcome this tendency to apparent bias and it is apparently the cross-examination which is the bugbear of the ordinary witness. In this connection a book by Francis L. Wellman, of the New York Bar, entitled "The Art of Cross-examination," will be found interesting, as showing the extraordinary methods resorted to by attorneys to gain their ends. The author says in one place, p. 83, "The art of the cross-examiner should be directed to bring out such scientific facts from the knowledge of the expert as will help his own case, and thus tend to destroy the weight of the opinion of the expert given against him," and again, p. 84, "No question

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should be put to an expert, which is in any way so broad as to give the expert an opportunity to expatiate upon his own views."

The real evil, the fundamental evil in the matter of expert testimony, in my judgment, consists, however, in the employment of experts by each party to the legal controversy, so that the experts are in a manner opposed to each other. No matter how unprejudiced may be his intentions there must be an unconscious tendency on the part of the witness to be biased toward the side that has secured and paid for his services, a certain infirmity innate in human mind and character. This evil is overcome in the French law by the court ordering an investigation by experts, either selected conjointly by the contending parties or appointed by the court itself. The method in Germany is similar. In either country the court may be guided by the expert opinion signed and submitted to it, or may order a new investigation, or may throw it out altogether.

The reason that our system has not long ago been altered to meet the needs of justice lies in the chief characteristic of the American method in criminal trials, namely, that the accused shall be allowed to produce any proper legal and medicolegal evidence in his own favor, that the judge alone is the judge of the law and the jury alone the arbiter of the facts. I propose the following method of procedure. That the local Medical Society prepare a list of medical expert witnesses, these being selected with some view to their special qualifications for the matter in hand. That from this list, after eliminating such names as are objected to by either side, the court appoint a given number to examine and report upon the medical phases of the question at issue. This would not interfere with the prerogatives of the court, of the jury or of the parties to the suit.

Some such measure was drafted by Chief Justice Emery of Maine and I find some of his arguments in support of it in the *Medico-Legal Journal* of March, 1907. He says: "I do not find in the books, either of law or medicine, that expert evidence has been much praised or welcomed. It seems rather to have been regarded as a necessary evil, to be tolerated because nothing better could be had." In Honigan's case, 29 Mich. 4, the court said: "The experience of courts with the testimony of experts has not been such as to impress them with the conviction that the scope of such proofs should be extended. Such testimony is not desirable in any case when the jury can get along without it."

In Clark vs. The State, 12 Ohio 483, the court, after quoting a disparaging remark by Sir John Nicoll, said: "Whenever the

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physicians have enlisted on the side of either party, the difficulties were greatly multiplied, and however honest or renowned for professional character the witnesses may be, such will be the conflict of their testimony, in nine cases out of ten, that it will be utterly unsafe for a jury or court to adopt the conclusions of either side." But unfavorable comments are made not only by judges and lawyers. Physicians and medical societies have often and publicly bemoaned the quality of much of the medical evidence given in court, and have desired and sought its improvement.

In what I say of the causes of this infirmity of medical evidence, which makes it so often unsatisfactory, I believe I have the concurrence of many eminent physicians. At the outset I ought frankly to concede what they claim, that one cause is ignorance of medical science on the part of judges and examining counsel. To be a good judge or a good trial lawyer, one should have some previous knowledge of the nature of the subject-matter under investigation. If we in our profession would learn more of the general science of medicine, the more easily could we extract medical facts from medical witnesses. Eminent physicians have told me that it is very difficult for them to state medical facts clearly in answer to questions propounded by uninformed lawyers. They complain that they are not allowed to use illustrations of their own choice, that their attempted expositions of apposite medical truths are often spoiled by confusing interruptions and objections. They urge that in stating medical truths they should not be laced as straight as the ordinary witness, who is confined to visible or audible facts, but should be allowed somewhat of the freedom of the classroom where they give instruction. They say they do not object to being heckled in cross-examination and made to meet criticism and defend their statements but they do insist that, like the candidate on the hustings, they be allowed full answers.

I think these complaints are to some extent well founded, and if courts and counsel will give medical witnesses more protection from interruption and better opportunity to complete their answers, their testimony will give more light.

If now we provide by legislation that in any case in which medical questions may arise, requiring medical expert testimony for their solution, the court may designate one or more physicians to make such examinations as either party desire and to make notes and special study thereof preparatory to giving evidence, do we go any farther than we have safely gone in the other case?

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We abridge no right of the parties. We leave free the right to call the court physician or not to call him, and also to call other physicians. In practise, however, the court physician would be called by one side or the other. But he would testify more as the friend of the court than as a witness for a party, would owe nothing to either party and would have the more weight accordingly.

Under such a statute we should be measurably sure of at least one learned, competent, clear-minded, clear-speaking and unbiased witness. He would be selected because of the confidence of the court and the parties in his integrity, learning and skill, and in his ability to make clear statements. It would be an appointment of honor, stimulating him to deserve it by his faithfulness. He would know that he would be subject to vigorous cross-examination, and that he might be confronted with other physicians. He would feel, however, as the court's appointee, a sense of responsibility to the court rather than to the party calling him. He would be stimulated to make deeper study and investigation, to form his opinions carefully and conservatively, to state them clearly and accurately. He would be largely free from any sympathy with, and from any sense of obligation to either party. I believe in a short time under such a statute few physicians, other than the court physician, would be called and if any, only the best, because of the greater weight that would be given to the evidence of those appointed by the court over those chosen by either party. Great saving in the length and expense of trials would follow.

In this very imperfect paper I have endeavored to point out the very unsatisfactory status of medical testimony and have proposed a remedy which I wish you to consider and not to cast aside without proposing a better one.

Realizing, as I do, the stigma and obloquy which now rest upon the medical profession, and for which I do not feel ourselves responsible, I now seek to throw off this yoke not only for the better reputation of medicine but for the good of the community at large. I appeal to the members of the legal profession for their aid and guidance in settling this perplexing problem. I assure you, gentlemen, if this medicolegal society never does anything else it will earn the everlasting gratitude of the profession of medicine.

Since the above was written the suggestions herein contained were put to a practical application in a recent murder trial with the happiest results.

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Eclampsia

By E. O. HOUCK, M. D., Cleveland

In connection with the report of a number of cases of toxemia of pregnancy and eclampsia which have occurred at St. Ann's Maternity Hospital during the past two years, I wish to say briefly a few words upon this important and obscure subject. In the practise of obstetrics scarcely any complication arises which presents at times such terrifying symptoms, or which is so grave in its results. Formerly by the term eclampsia were included only those cases of toxemia of pregnancy which were associated with convulsions. With the closer study of both the clinical manifestations and pathologic findings in patients with toxemia, the two conditions, either with or without convulsions, are found to be very closely allied if not identical. It will be impossible to review in the short time at my disposal the whole subject of the toxemias of pregnancy, I will therefore confine my remarks to that phase of the subject commonly known as eclampsia.

Since Lever, in 1843, found albumin in the urine of eclamptics, investigators have sought to associate eclampsia with a diseased condition of the kidneys. Though Lever could find no urea in the blood of eclamptics, nevertheless it was generally believed that eclampsia was a form of uremia.

Spiegelberg and Frerichs (1851) believed that the convulsions were due to the circulation in the blood of ammonium carbonate (instead of urea), however, they too were unable to demonstrate its presence in the blood.

Recognizing the close relation between diseased kidneys and eclampsia, Lever further sought the cause of the kidney changes in an increased pressure upon the renal veins by the pregnant uterus.

Inasmuch as the condition of the kidney in eclampsia is anemic and not hyperemic, Cohnheim, Spiegelberg and others believed the kidney changes were due to a reflex spasm of the renal vessels secondary to irritation of the nerves along the genital tract.

Schroeder sought to explain those cases of eclampsia without much kidney change as due to an anemia of the brain.

Halbertson and Lohlein believed that the convulsions were due to compression of the ureters which not only restricted the

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elimination of the urinary constituents but further caused marked dilatation of the pelvis of the kidney with subsequent secondary reflex convulsions.

Traube and Rosenstein (1863) thought the convulsions were due to an hydremic condition of the blood with subsequent edema and anemia of the brain. In recent years, however, the diseased kidney has not been considered as the primary cause of the convulsions, but the kidney lesions, the still more constant liver changes and the occurrence of thrombi in various organs as well as the convulsions were thought due to the circulation within the maternal organism of some organic poisons. For convenience these supposed poisons may be divided into: first, those arising from faulty metabolism, either maternal or fetal, or both; and, second, those arising from impaired function of some of the ductless glands, such as the parathyroids, placenta or the ovaries.

The toxic theory alone, however, has not been sufficient to explain both the clinical manifestations and the pathologic findings, or, as occurs in some cases, the absence of demonstrable pathologic lesions. In addition, therefore, to the toxic element Von Winckel believes that reflexly, from irritation of the genital tract (as for example during the passage of the head or the stretching of a rigid cervix or perineum), a reflex arterial spasm is set up in the kidney, liver and even the brain, which gives rise to the convulsions, and that when the spasms are but slight and transitory no marked changes are produced in these organs. This class of cases Von Winckel is pleased to classify as reflex and in this he is supported by Langemeister. The latter writer also revives, to a certain extent, the Hippocratic idea of an increased irritability of the nervous system in pregnant women. The presence of toxins circulating in the blood was thought to have been shown with a certain degree of probability by Zweifel, Bouchard and Chamberlent when they demonstrated the supposed greater toxicity of the serum of eclamptic patients over that of normal pregnant women and an associated diminished toxicity of the urine in the same class of patients. In other words, a retention in the blood of toxic substances which should normally be excreted in the urine.

What then are these toxins, and what is their source? Here again we are bountifully supplied with theories. Massau believed that they were due to insufficiently oxidized products of metabolism, the so-called leukomains and carbamic acid. Zweifel thought these toxins were allied to sacrolactic acid and that they

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caused the changes in the liver and heart-cells and the destruction of the blood-cells.

Volhard (in 1897), Forchheimer and Stewart were unable to substantiate the findings of increased toxicity of eclamptic serum and the diminished toxicity of the urine. They maintained that the findings after the injection of serum depended not upon its toxicity but upon its specific gravity and the speed with which it was injected, and that the toxicity of the urine depended upon the bacterial content.

The fetal origin of the toxin seemed to be supported clinically from the fact that eclampsia is more frequent in twin pregnancies and that with the death of the fetus in utero the symptoms of the disease disappear. Further, that similar convulsions occur in the new born of eclamptics, the organs of both mothers and children exhibiting similar pathologic lesions. In other words some women, either because oxidation fails to take place or because of insufficient elimination, are overwhelmed with products of their own or fetal metabolism which cause characteristic changes in the liver and kidney and, eventually, convulsions.

The cause of the convulsions was sought not alone in the fetal body but also in the fetal ectoderm. The numerous emboli of chorionic cells found in the liver and lungs of eclamptics as well as in normal pregnant women were thought to be important etiologically (G. Veit, Gotschalk). Recently more importance has been attributed to the syncytial cells and their product syncytiolysin.

Pinard thought that perhaps the convulsions were due to a continuation of the internal secretion of the ovary during pregnancy and its deficient destruction by the secretion of the thyroid gland. Nicholson also thought there was a close relation between the failure of the thyroid function and the production of eclampsia. More recently the parathyroid bodies have assumed an important etiologic role. Along these same lines Halban sought to explain eclampsia by his theory of the "reaction of pregnancy." This reaction, he believes, is due to an internal secretion (?) of the placenta which, in eclampsia, either is present in abnormal amount or is not properly metabolized. In support of this theory Halban draws attention to the close analogy between the normal "reaction of pregnancy" as manifested by enlarged uterus, breasts and thyroid, and many of the concomitant symptoms of pregnancy which border on the pathological, such as vomiting, neuralgia, chorea, bone-pains, etc.

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In summing up the various theories, Schauta has this to say regarding the "metabolic theories": That if the poison of eclampsia is really due to deficient metabolism, it is remarkable that more are not affected than are; that he cannot see why primiparæ should be so largely affected and that the convulsions should occur so frequently during labor. Schauta believes that in addition to the intoxication, there must be also an acute exciting cause, probably compression of the ureters. Williams, in reviewing the "biological theories," writes as follows: "The clinical history and anatomical findings afford presumptive evidence that the disease is due to the circulation of some poisonous substance in the blood which gives rise to thrombosis in many of the smaller vessels with consequent degeneration and necrotic changes in the various organs, but at the same time we are absolutely ignorant concerning the nature of the offending substances, and, besides, the experimental evidence thus far adduced in favor of such an etiological factor is not convincing."

Additional etiologic factors in the occurrence of eclampsia, in fact the only ones concerning which there is an unanimity of opinion, are as follows:

That the disease occurs most frequently in primiparæ (70%) and especially in very young or elderly primiparæ.

That it is more frequent in illegitimate pregnancies, due perhaps to the psychical factor.

That its occurrence in one pregnancy has but little influence in subsequent pregnancies. Schauta states that in only three per cent of all cases of eclampsia does it recur.

That it is more frequent in some countries than in others, due perhaps to telluric conditions, and also that it is more common in some seasons (moist) of the year than others.

It is also inclined to appear endemically and this factor has led somewhat to the belief that it was due to an infectious organism.

Eclampsia appearing in the female population of cities is more severe than when it occurs in the country.

Of clinical interest is the relation eclamptic convulsions have to labor. The convulsions occur most frequently during labor, 43%; next, before labor, 35%, and after labor 22% (Williams). With the onset of convulsions, labor usually begins. When convulsions occur postpartum they are likely to be associated with a genuine nephritis. The most favorable time for the occurrence of postpartum convulsions is immediately

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after delivery, due perhaps to the cerebral anemia consequent upon the suddenly changed intra-abdominal pressure (Winckel). When the convulsions occur some time (several days) after labor their onset is commonly due to some psychical irritation. As to frequency, obviously it is more frequent in lying-in hospitals, averaging about one in every 160 cases of labor, whereas in general practise it occurs once in about every 550 or 600 cases. Further, that with the emptying of the uterus as quickly as possible after the first convulsion, the convulsions do not recur in about 90% of the cases.

Even though the theories concerning the etiology of eclampsia are so multiple, the pathologic findings are fairly constant. Changes may be found in any of the organs of the body but especially in the kidney, liver, lungs and brain.

The changes in the kidney are usually a cloudy swelling or fatty degeneration of the secreting epithelium, further, multiple emboli in the glomeruli, smaller arteries and veins.

When eclampsia develops upon a genuine nephritis one may expect to find changes characteristic of the latter disease. In some few cases no changes have been found at all.

So characteristic are the changes in the liver that Pinard believed the disease to be an hepatic toxemia. The changes consist in hemorrhagic and anemic necrosis especially around the periphery of the lobules, whereas in toxemia of pregnancy the changes are found around the central vein. Schmorl reports finding also numerous emboli in the liver. The liver changes in the 10 cases examined were sufficiently extensive to produce icterus. Small hemorrhages occur in the brain, though not commonly. The presence of anemia or edema is also not constant. The heart-muscle is frequently the seat of fatty and parenchymatous degeneration.

The changes found in the lungs are usually due to fat emboli. The source of these emboli, according to Virchow, is the fat of the long bones and of the pelvic connective tissue. Lubarsch calls attention to the multiple thrombi, stating that their presence is almost pathognomonic for eclampsia and that they indicate that there must be some substance circulating in the blood which markedly increases its coagulability.

Symptoms: It seems scarcely necessary to refer to the symptoms of eclampsia when once the convulsions have begun. It is, however, important to dwell upon the preconvulsive mani-

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festations of eclampsia. Clinically it would seem that the disease could be divided into three classes:

1. Those cases associated with a moderate or a considerable degree of albuminuria (renal type).

2. Those cases, usually severe, associated with clinical signs of marked liver changes (hepatic or icteric type).

3. Those cases occurring without any premonitory albuminuria (reflex type).

In the first and second types the early symptoms are much the same. These consist in a general feeling of malaise, loss of appetite, continued vomiting in the late months of pregnancy, headaches and a more or less general edema. In addition are the symptoms referable to the special organs such as spots before the eyes, flashes of light, ringing of the ears and dizziness. In the hepatic type there is usually slight icterus, either general or noticeable only in the sclera. Eclampsia may occur in the third class without any premonitory symptoms at all.

Patients should be instructed to inform their attending physician should they observe any of the above symptoms. When one or more of these symptoms are found immediate attention should be directed to the urine. The examination should embrace not only the test for albumin but also sugar, the total amount of urine in 24 hours and its urea content. If one desires to be more exact the urea nitrogen and the ammonia nitrogen may be estimated. Williams has laid special stress upon the determination of the total nitrogen and its relative partition. Microscopic examination will usually show an abundance of casts and epithelial cells. When these evidences of a pre-eclamptic toxemia are found, the patient should be placed in bed, carefully watched and intelligently treated. In all three classes of cases the signs of an impending convulsion are severe headache, slight or pronounced disturbances of vision and disturbances of the sensorium associated with marked epigastric pain. There are twitchings of the muscles of the face and an anxious expression of the eyes, loss of consciousness and then the convulsion will rapidly intervene. The convulsions last from one-half to one minute, are clonic in character and, at times, very violent. They may recur very rapidly, cases having been reported in which the patient had as many as 80 convulsions. With the onset of the spasm the loss of consciousness becomes deeper and may develop into fatal coma. Consciousness is but slightly restored during the intervals between the convulsions.

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During, or immediately after, the convulsion the quantity of urine will be very greatly diminished or entirely suppressed. It will be loaded with albumin, containing perhaps from one to four percent (Esbach). Sugar is also frequently present. The excretion of urea will be markedly lessened and the total quantity seems to have a distinct relation to the severity of the attack. Normally there should be about 24 grams excreted daily, but during the toxemia after a convulsion it may be as low as 10 to 15 grams. The total nitrogen, normally 35 grams in 24 hours, is also markedly lessened, but the relative proportion of ammonia nitrogen is increased (Williams). The ammonia nitrogen substances, namely, creatin, uric acid, etc., are precipitated by phosphotungstic acid, and normally represent one-fifth the total nitrogen. In toxemic vomiting in early pregnancy the total nitrogen may be normal or even increased, whereas in eclampsia the total nitrogen is diminished. In both, however, the proportion between the ammonia nitrogen and urea nitrogen may be the same. Normally the ammonia nitrogen should be from four to five percent of the total nitrogen. During and immediately after the convulsion the body temperature rises rapidly and may reach an extreme degree (106° F.). The patient will be restless, throwing herself about in bed, and a recurrent convulsion may be started by the slightest stimulus. Such, then, is the usual clinical picture of a case of toxemia which terminates in convulsions.

Treatment: Inasmuch as the actual cause of this grave complication of pregnancy remains unknown, the treatment is largely empirical and symptomatic. The therapy has been modified from time to time depending upon the prevalent opinion as to its cause and, unfortunately, it must be said that even now we are apparently helpless in the grave forms of the disease occurring in two to three percent of all cases. We can, perhaps, best approach the discussion of the treatment by considering the symptoms which have to be met. First of these are the preconvulsive symptoms of toxemia as manifested by headache, disturbances of vision, nausea and vomiting, edema and its usual accompaniment, albuminuria. The treatment of this stage of the disease can be considered prophylactic or preventive. Since prophylaxis depends on the early recognition of the symptoms of the toxemia, it is the duty of the practitioner to see his patients at least once in two weeks during the last six weeks of pregnancy, especially when the urine shows more than a trace of albumin. The patient should furthermore be instructed to notify the physi-

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cian when she suffers from headache, disturbances of vision, dizziness or any of the premonitory symptoms of eclampsia. When the patient exhibits evidence of pre-eclamptic toxemia she should be advised to rest in bed, and she should be placed upon a restricted diet, consisting largely of milk. The skin and bowels must be active and frequent examinations of the urine should be made to determine both the quantity of albumin and the excretion of urea. When accuracy is desired the total nitrogen elimination should be determined and also its relative components. Frequently, by means of rest in bed, milk diet and free catharsis, the quantity of urine and the amount of urea will increase, and the amount of albumin diminish. However, even if improvement is noted in both the symptoms and the urine, the patient should be carefully watched and a prognosis guardedly given. The improvement noted may be only transitory and despite the most careful regulation of diet and the best hygiene, convulsions will supervene at a time when we feel least concerned about our patient. Fortunately this latter termination in a well managed case of pre-eclamptic toxemia is exceptional. If, however, the symptoms become steadily worse, the urine becomes scanty and the quantity of urea lessened, then emptying the uterus is indicated. If haste is not urgent this can best be accomplished by introducing a bougie and permitting labor to go on naturally. Should the symptoms be urgent accouchement forcé is indicated. This can be done either by manual dilatation of the cervix, the use of Champetier de Ribes bags or a Bossi dilator, the precise manner depending upon the length of the cervix, its patency and its dilatability. After the cervix has become fully dilated either manual or instrumental extraction may be employed depending upon the presentation. However, as previously stated, despite the most careful management convulsions may supervene. Convulsions may further appear without the least premonitory sign either in the general condition of the patient or in her urine. Lastly, and unfortunately perhaps in the larger group, the onset of the convulsion is the first evidence of the disease noted by the physician. The diagnosis, as is evident, at this stage presents no difficulty. The management, however, becomes most difficult and at times will task the ingenuity and skill of the most expert. The indications to be met may be stated in brief as follows:

1. Control the convulsions.

2. Relieve the toxemia by emptying the uterus and increase elimination.

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3. Institute such measures as will conserve the energies of the patient, restore consciousness and ward off a pneumonia or edema of the lungs.

The measures to be employed depend further on whether the convulsions occur before, during or after labor, and upon the condition of the cervix and the general state of the patient.

First, to control the convulsions, the remedy which will immediately suggest itself will be chloroform in sufficient amount to control the spasms at whatever stage they occur. When the convulsions occur before or during labor the patient should be further completely narcotized during any operative intervention. The question may arise as to how long chloroform may be administered. As a rule chloroform should be given only during the convulsion or during any operative interference. If there is no return of the convulsions after the first one or two seizures the anesthetic may be suspended and the patient receive an enema of chloral hydrate, two to eight grams, or a hypodermic of morphin, or both. Morphin should be used only in sufficient amount to allay the restlessness and not in large doses as was in vogue at one time for their supposed efficiency in relieving spasm of the cerebral vessels (Bumm). In place of morphin Vassali and Nicholson recommended the use of extracts from the thyroid or parathyroid bodies. However, it must be remembered that the control of convulsions is but the relief of one symptom of the disease and is far short of its cure. In favorable cases with the onset of the first convulsion labor may begin and terminate uneventfully with no return of the convulsion and with a rapid amelioration of the symptoms. With early and complete dilatation of the cervix forceps may be applied, and when indicated version and manual extraction may be performed.

Second, for the relief of toxemia, the wisest procedure is evacuation of the uterus, for we know that whatever may be the etiologic factor of the disease, the exciting cause is a gravid uterus and experience has taught us that after the uterus has been emptied there is frequently immediate relief. While all clinicians are in accord in recommending the emptying of the uterus, there is considerable discussion as to just when and how this should be done. Esch epitomizes the treatment of eclampsia in Oldhausen's clinic in Berlin as follows:

"When the requirements (fixed head and dilated cervix) are completely or at least partially fulfilled, then forceps should be employed. In special cases version is to be employed with subsequent manual extraction.

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Craniotomy is to be performed on a dead child. Immediate delivery should be employed, when the general condition of the patient is bad, as manifested by deep coma, large mucous rales, labored respiration, and rapid pulse, and elevation of temperature. Immediate delivery is further to be instituted in cases of deep coma without previous convulsion, especially if the patient is icteric and the urine contains large amounts of albumin and casts. Further those cases which come under treatment in an exhausted state as a result of numerous convulsions. Further in elderly primiparæ, because of rigid cervix and perineum (Mohlman reports a death rate of 28% in women above 27 years) and in patients having a large amount of albumin and casts; for experience has demonstrated that these cases are the most fatal. However if labor has just begun, and the general condition of the patient is good, or perhaps only slightly affected, and the patient having had one or two convulsions, one can wait for labor to set in and bring about a natural dilatation of the cervix, but if, in the latter class of cases the patient becomes worse during birth, the patient should be immediately delivered."

This so-called conservative treatment has been vigorously combated by many of the continental writers. For example Bumm, Zweifel, Winckel, Fehling, and others advise immediate delivery as soon as possible after the first convulsion. Bumm asserts that by this means only two or three percent of the cases having but one convulsion are lost, and by the same treatment, when all cases of eclampsia are considered, he has a mortality of from but 11% to 15%, whereas by the so-called conservative treatment the mortality is from 25% to 30%.

Fehling states that it should be considered almost bad technic to permit a case of eclampsia to terminate by spontaneous labor.

How is it possible then to rapidly empty the uterus? When the cervix has partially dilated, or is dilatable, dilatation can be completed either manually or by one of the bags adapted for this purpose or with a Bossi dilator. After complete dilatation has been attained high forceps can be applied or version adopted, depending upon the presentation. In recent years, especially under the stimulus of Duhrssen (1896), vaginal Cesarean section has been efficiently employed to effect rapid delivery. This method is well suited for its purpose when employed by competent persons and under favorable circumstances. Vaginal Cesarean section is especially indicated in elderly primiparæ or in cases of eclampsia associated with severe convulsions. This operation is of course contraindicated in a contracted pelvis. Its advantages over the classical section are that the peritoneal cavity is not opened, that there is no subsequent hernia and that the mortality is decidedly less than after the abdominal section. It is further worthy of mention that after either early instrumental or manual emptying of the uterus the convulsions recur

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in only seven percent of the cases. In addition, Winckel states that neither the maternal nor the fetal mortality is increased by operative delivery when undertaken early.

Of measures to be employed to lessen the toxemia, the administration of croton oil in drop doses must be mentioned. Diuretics and diaphoretics have been widely used, however, with doubtful results. Salt solution subcutaneously has been very favorably employed. However, to be efficacious, both Bumm and Osterloh advise the subcutaneous administration of large amounts of salt solution, from 1000 to 1500 c. c., three times a day. Hot packs have been employed for years on the supposition that eclampsia and uremia were identical. There seems, however, to be a disposition on the part of men with large experience to abandon their use, since they are very difficult to give and are very troublesome to the patient, not to mention the danger of burns, exhaustion and possible pneumonia from exposure following their use. The use of pilocarpin to promote diaphoresis is to be mentioned only to be condemned. Its use is frequently attended with fatal edema of the lungs.

Associated with the use of salt solution for the purpose of diluting the urine and promoting the elimination of toxins is the operation of blood-letting. For some years this method of treatment fell into disuse but it has recently again come into vogue. From 300 to 600 c. c. of blood may be withdrawn. It is especially indicated when the convulsions occur postpartum and when birth has not been attended with much loss of blood. It is positively indicated in a patient suffering from cyanosis or beginning edema of the lungs. Veratrum viride is a time honored drug employed hypodermically to lessen the rate and lower the tension of the pulse, thereby warding off convulsions, and is not indicated when the pulse is of low tension. It is used only in America, especially in the Southern States.

A word now as to the measures to be employed to conserve the energies of the patient, sustain the pulse and ward off edema of the lungs and pneumonia. Some of these have been previously discussed. Morphin in ordinary doses and chloral hydrate per rectum may be given to control the restlessness. To sustain the pulse, camphor and olive oil can be used per rectum. To ward off edema of the lungs keep the air passages free from mucus. When the respiration is shallow employ artificial respiration. This can be continued for hours and combined with the

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continued administration of oxygen. In a recent article Von Osterloh, of Dresden (*Munsch. Med. Woch.*, March, 1908), calls attention to the remarkable results reported by Stoganoff, of St. Petersburg, who reported two series of 45 and 100 cases respectively without a death. Stoganoff's method is as follows: When the convulsions have occurred give morphin .015 gram hypodermically to control the convulsions, and chloral hydrate, 1 to 2½ grams per rectum. Promote delivery as early as possible without risk to patient or child. Give early and practically continuous inhalations of oxygen, especially during convulsions. Keep the nose and mouth free from mucus. The patient further should receive a large amount of salt solution per rectum.

Summary of cases of toxemia and eclampsia at St. Ann's Maternity Hospital since September, 1906:

Cases with convulsions	22
Cases without convulsions	10

CASES WITH CONVULSIONS

Married	19	
Single	3	
Primiparæ	15	
Multiparæ	7	
Full term	14	
Seventh to eighth month cases	8	
Antepartum convulsions	17	
Postpartum convulsions	15	
Antepartum and postpartum convulsions	5	
Average age of patients	27.2	
Natural deliveries (with two maternal deaths)	5	
Forceps cases (with four maternal deaths)	10	
Version and manual extraction (with one maternal death)	5	
Vaginal Cesarean sections (with one maternal death)	2	
Total maternal mortality	8	
Average maternal mortality	36	3/10%
Stillborn deliveries	4	
Children dying soon after	6	
Children now living	12	
Albuminuria (antepartum) slight	6	
Albuminuria (antepartum) marked	16	

It is interesting to note that of the 22 cases of eclampsia, 15 occurred during 1907 and five during 1908.

These cases of eclampsia include the patients of 17 physicians.

There was an average of one case of eclampsia to every 40.5 patients admitted to the hospital.

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Bismuth Injections for the Treatment of Old and Secreting Fistulae

By WALTER G. STERN, M. D., Cleveland

Lecturer on Orthopedic Surgery at the Cleveland College of Physicians and Surgeons; Orthopedic Surgeon to Mount Sinai Hospital, etc.

Orthopedic surgery has always been ready to take from the hands of science all that has proved of value in the amelioration and cure of the diseases which fall under its care, and in turn has often delivered to medicine and surgery something new and invaluable, as for instance the conservative treatment of surgical tuberculosis.

One of the latest ideas in treating conditions which are for the most part orthopedic in character is the bismuth treatment for old and secreting fistulae. One thing however must not be forgotten in this connection, we are not speaking of any specific cure-all to succeed in closing each and every fistula, but only of a new method in the treatment which in the light of our present ever increasing experience promises to accomplish much in the future.

Old secreting fistulae are and always have been a *bete noir* not only for orthopedic and general surgery but also for general medicine and the various specialties. One needs only to remember amongst others the almost incurable fistulae after certain cases of empyema or abscess of the lung which last for years, and some of which could not be cured even by the terrible and horrifying Schede operation, the ablation of the entire shoulder girdle and costal arches of the affected side, or to think of the many fistulae after operations for mastoiditis, sinusitis, appendicitis, kidney disease, etc. Bone and joint diseases have always been the favorite starting points for such fistulae.

Since the discovery of the X-ray, bismuth has been in use, usually in the form of a glycerine emulsion as proposed by Kocher, for the purpose of photographing accessible cavities or organs. For decades fistulae have been treated by injections of various emulsions, notably iodoform for the cure or prevention of such fistulae, but the subject of the present paper was not definitely formulated until about two years ago when Dr Emil Beck of Chicago injected a six year old child with a 33% mixture of bismuth subnitrate and ordinary vaseline for the purpose of

Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, February 5, 1909

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definitely locating the ramifications and direction of an intractable, much operated upon, secreting fistula by means of the X-ray. A few days later he learned that the fistula had ceased secreting immediately after the injection, for the first time in two years. Believing this improvement to be but temporary he ordered the child back for later observations. Two months later the fistula was still closed without any symptoms of retention of pus. A skiagraph at this time revealed the disappearance of the bismuth. This fistula is still closed and apparent recovery has taken place. At the time of the announcement of Beck's method to the Chicago Medical Society in January, 1908, he had successfully treated 14 cases whose history dated back from 16 years to six months before the treatment was begun. In September, 1908, he was able to report from 150 cases collected from various sources and by this time the number of cases treated by this method in Europe and America must number well into the thousands. His brother has recently reported the use of bismuth in 300 nose and throat cases.

The method for treating old secreting fistulae is as follows: Under the most rigid antiseptic precautions the main opening of the fistula is injected with mixture A, which is made up as follows: Bismuth subcarbonate 30.0, petrolatum 60.0. Mix while boiling. Sterilize. The injection is best made with a large cone pointed, asbestos plunger, glass syringe. The mixture is poured into the syringe while hot and fluid and can be readily cooled by wrapping the barrel of the syringe with pieces of gauze wet with alcohol. Care should be taken that no water gets into the mixture. When the contents of the syringe lowers to the proper temperature the nozzle is pressed into the opening of the fistula which is injected with as much of the mixture as will fill it without causing too much pain. All secondary openings are held closed with a wad of gauze. When the fistula is comfortably full the syringe is removed and a piece of gauze is quickly pressed down upon the opening to prevent the contents from escaping. In five minutes the mass is firm enough to be retained without pressure. An ice bag placed over the opening helps to shorten this time. A sterile compress is bandaged over the opening and the case is now carefully radiographed to render the bismuth radioactive if such a thing be possible, and also for diagnostic purposes. One week afterwards the fistula is to be treated by injections of the following, mixture B: Bismuth subcarbonate 30.0, white wax 5.0, soft paraffine 5.0, petrolatum 60.0, using

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the same technic as before. The fistula is to be injected not oftener than once a week until the discharge ceases and the fistula is cured. It will be found that unless the case be one of those lucky ones which heal under the first injection, that a part of the bismuth mass has been expelled from the fistula and will be found upon the compress together with the usual secretion of the fistula. But the character of the discharge soon changes, pus becomes less purulent and finally watery, its amount diminishes rapidly, while the amount of bismuth one can inject lessens until finally, as the discharge ceases, no more can be injected into the opening. The fistulae are not to be irrigated with watery or other solutions; the only thing permissible is to fill them up with alcohol to dry them out before the first injection. These bismuth injections can be performed anywhere where an aseptic technic is practicable, and no stay in bed or in a hospital is necessary. In the Home for Friendless and Crippled Children in Chicago the injections are made once a week on a given day in the dispensary and the patients allowed to go home immediately after the compress is applied.

What class of cases is amenable to such treatment? It is self evident that the most favorable classes are those in which the cause of the fistula—the primary focus, the bone, joint or other disease—has been cured by general hygienic, medical or special surgical treatment, but in which on account of the dense walls, many ramifications, etc., the fistulae remain open and secreting. These constitute, possibly, the vast majority of *old cases,* as it is well known that intractable fistulae can persist long after the original cause has been cured. Such cases have hitherto been subjected to repeated excisions, curettments, etc., often without avail. Such fistulae are also the ones which heal with a few injections of bismuth paste and give the most brilliant results.

The next class of cases and the ones which will soon be the only ones left for treatment, are those in which the original focus of infection while not cured has become stationary. In such the bismuth mixture seems to exert wonderful antiseptic and curative powers and a cure or apparent cure of the fistula speedily follows its exhibition. Cases in which the original disease is still florid and actively secreting, with a few exceptions to be noted later, are to be injected, for *diagnostic purposes, only once* with mixture A and immediately radiographed. The excep-

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tion to the last rule seems to be an original unopened cold or subacute abscess which—as has been shown by Ridlon and Blanchard of Chicago—can often be cured by evacuating either with a large sized trocar or a minute puncture with a tenotome. After thorough drainage it should be immediately filled up with bismuth wax mixture B, and the opening sealed up. Here the mixture undoubtedly acts like the cotton plug of a sterile culture tube and prevents secondary infection.

The untoward results from the use of bismuth are of two kinds, bismuth poisoning and retention of pus with resulting chills, fever, etc. As far as the bismuth poisoning is concerned the bismuth of course must be absolutely pure, but even then a poisoning has been observed which seems to come from the metal itself and gives a blue line about the gums. But there is another danger, the salt of bismuth in common use has been bismuth subnitrate; it has been shown that when this salt is given internally in large doses, especially in the intestinal diseases of childhood, the drug may be decomposed into bismuthic sulphite and orthonitric acid (hypothetical H^3NO^4) which later becomes reduced in part to nitric and especially nitrous acids, the latter of which gives rise to the familiar nitrite poisoning. This can also be true of bismuth subnitrate when injected into fistulae and genuine cases of nitrite poisoning have been reported from such injections. I have therefore substituted bismuth subcarbonate in my formulae.

Retention of pus should be a rarity as the melting point of mixture B is so nearly that of the normal body temperature that any considerable fever melts it and it is discharged along with the rest of the contents of the fistula.

The action of the injection is unknown. Beck thought at first that the exposure to the X-ray may have rendered it radioactive. It is also held to be an antiseptic but probably the bismuth wax is only a bland, unirritating, soothing mass which acts as a framework for new connective tissue.

My own experience is limited to four (and I may even say, startling) cases.

CASE I: Male, aged 42, has suffered from Pott's disease of the dorsal vertebrae with fistulae in the back for the past 25 years. There are numerous scars and depressions on his back from previous operations for the cure of the fistulae and also from a laminectomy, etc., which I performed some eight years ago. In July, 1908, I injected the main opening which has been secreting off and on all these years with the bismuth mixtures and sent him home to his family physician with orders to inject the

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fistula once per week. At the last writing the secretion now no longer purulent still persists a little, yet the amount is not one-fiftieth of what it used to be. It is watery instead of purulent and the patient has gained in weight from the stoppage of the albuminous waste.

CASE II: Male, aged 38, has suffered for the past 10 months from tuberculosis of the acetabulum which broke through into the pelvis and caused an abscess along the iliac vessels. Tuberculin tests positive. Nine months ago the abscess was operated upon and the glands along the iliac vessels removed by another surgeon. Since then a fistula has persisted in the right groin which needed daily dressings. He was brought into my clinic at the Mount Sinai Hospital by the house physician for bismuth injections. The skin around the opening was red and eczematous from the constant discharge. First injected in November, 1908, and after the second injection the fistula closed and has remained closed ever since. The patient is said to have gained much in weight and now walks without the aid of canes or crutches.

CASE III: Boy, aged six, Pott's disease of the lumbar spines for three years, large abscess pointing in the gluteal region. Aspiration and injection of bismuth paste in October, 1908. Abscess has entirely disappeared although of course he still suffers from his Pott's disease.

CASE IV: Girl, aged 12, described at greater length in my paper on "The Use of Tuberculin,"[1] as the one case which did not improve under its use. Had a large abscess in the thigh from knee joint tuberculosis for one year which burst spontaneously at some time five or six months ago. Five months ago on changing her cast for the purpose of cleanliness and also with the distinct purpose of aspirating and injecting the abscess, I found that it had pointed in the popliteal space and opened spontaneously and that the dressings inside were full of dried and foul-smelling pus—as well as urine and feces—and the skin of the popliteal space undermined and reddened. After thorough cleansing I injected the fistula with bismuth wax, reapplied the cast and made a window at the popliteal space for dressings and subsequent injections. One week later only a slight amount of bismuth was on the compress together with a little pus. I gave another injection. One week later there was less bismuth and less pus; one week thereafter no pus and a very slight amount of bismuth. Since then the discharge has ceased, although the patient has developed a cough and some slight râles in the lungs. No fever at any time.

Conclusions: In the bismuth treatment we have a means of curing or at least greatly benefiting fistulous tracts, tuberculous sinuses, chronic and subacute cavities, including empyemata, etc. (Beck).

While it is not a cure-all or lauded as such it gives promise of great beneficial results.

The technic is extraordinary simple and painless.

Bismuth subcarbonate or subgallate only should be used.

It will not cure sinuses when the disease is active or when sequestra are present. These must be removed and the disease brought to a standstill before injection.

821 Schofield Building.

(1) Cleveland Medical Journal, March, 1909.

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Medical Cleveland in the Nineteenth Century

By H. E. HANDERSON, M. D., Cleveland.

[Continued from February and March Issues.]

MEDICAL COLLEGES

In 1863, Dr Gustav C. E. Weber, the professor of surgery in the Cleveland Medical College, resigned his chair in that institution and organized a new college under the name of "The Charity Hospital Medical College." The original faculty of this institution was composed as follows:

Dr G. C. E. Weber	Dean and Prof. of Civil and Military Surgery.
Dr Leander Firestone (1819-1888) .	Prof. of Obstetrics and the Diseases of Women and Children.
Dr Addison P. Dutcher (1818-1884)	Prof. of the Principles and Practice of Medicine.
Dr M. S. Castle	Professor of Legal Medicine.
Dr Jacob Dascomb	Prof. of Chemistry and Toxicology.
Dr J. H. Salisbury	Prof. of Physiology, Histology and Practical Anatomy.
Dr Robert N. Barr	Professor of Anatomy.
Dr William J. Scott	Prof. of Materia Medica, Botany and Pharmacy.
Dr Abraham Metz (1828-1871) . .	Professor of Ophthalmology.

Clinical teaching was made a prominent feature of the new college, and the wards of the St. Vincent's (Charity) Hospital, completed in the following year, were opened to the teachers and students for this purpose. The didactic lectures were delivered in rooms rented in the Hoffman Block (on the site of the present Cuyahoga Building), corner of Superior Street and the Public Square. The first class of the Charity Hospital Medical College graduated in 1865, and classes have been graduated in every year (except 1881) since.

In 1869 the college was affiliated with the University of Wooster, forming the medical department of that institution, and continued in this relation until 1896. In 1873 the didactic lectures were delivered in the old Brownell Street school building, on the corner of Brownell Street and Central Avenue, which had been remodeled to suit the needs of the institution, and was utilized for this purpose until the close of the last century.

In 1874 the school inaugurated a special summer course of medical lectures, designed for the benefit of young men engaged in business during the period of the usual winter session. The

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regular winter course was also maintained until 1888, when it was abandoned, and the summer course alone continued until 1893. In the latter year the winter course was resumed, and both courses maintained until 1895, when the summer course was definitively abandoned.

This college has always been a co-educational institution.

In 1881 an earnest effort was made to unite the two regular colleges into one large medical institution, under the auspices of the Western Reserve University. Many of the professors of the medical department of the University of Wooster resigned their chairs, and were at once elected to similar chairs in the old Cleveland Medical College, now the medical department of the Western Reserve University. But the Trustees of the University of Wooster declined to recognize the movement, and filled with new teachers the chairs thus vacated, and the work was resumed as usual in 1882.

In 1896, however, the school severed its connection with the University of Wooster and, under the new title of "The Cleveland College of Physicians and Surgeons," became affiliated with the Ohio Wesleyan University, as the medical department of that institution.

The present commodious college building of the Cleveland College of Physicians and Surgeons was erected as the result of this change of relations, and was opened for purposes of instruction in the year 1900.

The establishment of the Cleveland School of Pharmacy was due to a resolution introduced into the Cleveland Pharmaceutical Society by Mr E. A. Schellentrager, October 6, 1882. This resolution provided for the appointment of a committee of three members of that society, to arrange for a course of lectures on pharmaceutical chemistry for the benefit of the drug clerks and apprentices employed in the pharmacies of the city. The resolution was adopted and the committee was appointed, with full power to act. This committee consisted of

Mr. E. A. Schellentrager, Chairman
Mr. Edward Claassen
Mr. Hugo Linden

and at once instituted a course of one weekly lecture on pharmaceutical chemistry, held in the assembly room of the Pharmaceutical Society, in the City Hall. The scope of the lectures was enlarged from year to year, and new professors provided, until, at present, the faculty consists of seven teachers, and the school

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enjoys an attendance of about seventy-five students. The duration of the course has also been extended to three years.

The school secured an Act of Incorporation as early as 1886, but, for various reasons, did not avail itself of the advantage of this Act (which authorized it to confer the degree of Pharmaceutical Chemist, Ph. C.) until 1896, when it was reorganized with the following officers:

Mr. E. A. Schellentrager	President
Mr. G. L. Hechler	Vice-President
Mr. John Krause	Treasurer
Mr. Joseph Feil	Secretary

During the interval between 1882 and 1896 it was continued under the direction of a committee of the Pharmaceutical Society, of which Mr E. A. Schellentrager was the continuous chairman.

In 1904, largely through the energetic efforts of Professor H. V. Arny, the school was reorganized and a corps of fifteen trustees elected, and at the same time the veteran president, Mr E. A. Schellentrager, resigned, and was succeeded by Mr. L. C. Hopp.

Since 1900 the lectures of the school have been delivered in the building of the Cleveland Gas Light & Coke Company, 421 Superior Avenue, where all modern facilities for teaching are supplied.

In September, 1908, the School of Pharmacy became affiliated with The Western Reserve University, of which it forms the Pharmaceutical Department.*

MEDICAL JOURNALS

Several partially successful attempts to establish and maintain a local medical journal in Cleveland were made at an early date by the homeopathic physicians of this city.

The earliest of these journals, edited by Drs A. W. Oliver and John Gilman, appeared under the title of "The Northern Ohio Medical and Scientific Examiner," in February, 1848, but perished after an existence of only three months.

In October, 1851, Drs J. H. Pulte and H. P. Gatchell renewed the attempt, by the publication of "The American Magazine, devoted to Homeopathy and Hydropathy," which maintained a feeble existence until December, 1853, when it seems to

*For these facts I am indebted to the courtesy of Mr E. A. Schellentrager, the venerable ex-president of the school.

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have been merged into "The Quarterly Homeopathic Magazine." The latter journal survived thereafter but a single year.

A more successful issue followed the publication of "The Ohio Medical and Surgical Reporter," a bi-monthly journal, established by Drs D. H. Beckwith, N. Schneider and T. P. Wilson in 1867, which, under various editors, survived the vicissitudes of eight years, and suspended publication in 1876.

In 1900, a new journal, under the old title of "The Ohio Medical and Surgical Reporter," was established, and has maintained its existence to the present time.

The earliest regular medical journal established in Cleveland was "The Cleveland Medical Gazette," founded by Dr G. C. E. Weber, the successor of Dr Ackley in the chair of surgery of the Cleveland Medical College. The first number of the "Gazette" appeared in July, 1859, and the journal continued under the sole editorship of Dr Weber until December, 1860. when (though still retaining its own name) it was combined with "The Cincinnati Lancet and Observer," under the joint editorship of Dr Weber of Cleveland, and Drs E. B. Stevens and J. A. Murphy of Cincinnati. In December, 1861, however, the disturbed condition of the country and the unpromising outlook for the future led to the abandonment of the enterprise, and the journal suspended.

In 1885 a more successful essay of medical journalism was made by Drs A. R. Baker and Samuel W. Kelly, who, at the suggestion of Dr Weber, revived the old "Cleveland Medical Gazette" and continued its publication with fair success until 1902, when it was merged into the "Cleveland Medical Journal."

In 1896 "The Cleveland Journal of Medicine" was begun under the joint editorship of Drs P. Maxwell Foshay and Henry S. Upson, but, after a career of five years, was merged with the Cleveland Medical Gazette into our present local journal, "The Cleveland Medical Journal."

HOSPITALS

Mention has already been made of the early military hospital erected by Captain Sholes in 1813, and of the City Hospital on Clinton Street in 1837. The latter institution seems soon after to have either fallen into "innocuous desuetude," or at least to have degenerated into a simple infirmary or almshouse, in which latter rôle it was the legitimate parent of the City Infirmary, begun in 1850 at the corner of Scranton Avenue and Valentine Street, and completed in 1855. This infirmary was designed to

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accommodate both the insane of the city, and the sick and infirm poor, and furnished also facilities for clinical instruction to the physicians of the day.

THE MARINE HOSPITAL was begun by the United States government as far back as 1847, but pushed forward with such dignified deliberation that it was not opened for service until 1852, and even then was not entirely completed. Its administration from that period until 1889 was directed entirely by surgeons appointed from civil life, but in the last mentioned year partial charge was assumed by surgeons of the Marine Hospital Department. The list of civil surgeons who have directed its affairs is as follows:

Dr Chas. A. Pierce	1851, superseded	Dr M. L. Brooks	1861-65
Dr M. L. Hewitt	1851-3	Dr N. B. Prentiss	1865-69
Dr H A. Ackley	1853-57	Dr George H. Blair	1869-1873
Dr J. I. Todd	1857-59	Dr J. F. Armstrong	1873-77
Dr R. S. Strong	1859-60	Dr Proctor Thayer	1877-80
Dr W. A. Capener	1860-61	Dr Guy B. Case	1880-89

In 1875 the hospital was leased to the City Hospital Association for the term of twenty years, though certain wards were reserved for the use of the government, and in 1896, on the evacuation of the building by this Association (now entitled the Lakeside Hospital Association), the administration was resumed under the direction of surgeons of the Marine Hospital Service. The roll of the latter is as follows:

P. A. Surgeon,		S. T. Armstrong	1889-90
"	"	P. M. Carrington	1890
"	"	A. W. Condict	1890
"	"	S. D. Brooks	1890-94
"	"	Emil Prochasza	1894
"	"	R. M. Woodward	1894-97
"	"	D. A. Carmichael	1897-98
"	"	H. W. Wicks	1898-99
"	"	W. J. Petit	1899-1902
"	"	J. B. Green	1902-3
"	"	H. S. Mathewson	1903-1908
"	"	C. W. Wille	1908

In 1852 the Legislature authorized the erection of an insane asylum in Newburg, and the building was completed in 1855. It was burned down, however, in 1872, but rebuilt at once in a more substantial manner, and it has since been greatly enlarged and improved.

ST. VINCENT'S (CHARITY) HOSPITAL. This institution, the first of the great general hospitals of Cleveland, is one of the many results of the energy and charitable zeal of Bishop Amadeus Rappe, the Roman Catholic bishop of Cleveland, who for many

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years had solicited funds for its erection among all classes and creeds of our citizens. The experiences of the Civil War added weight to his personal arguments, and the building was begun on the corner of Central Avenue and East 22d Street in the year 1863, and opened for service in 1865. From the first its wards have been offered to the medical institutions of the city for clinical instruction, and the Charity Hospital has thus contributed largely to the education of our physicians.

The same period witnessed the humble beginnings of the present LAKESIDE HOSPITAL. This originated in a "Home for the Friendless," organized in the parlors of the "Old Stone Church" during the Civil War, and designed especially for the care and aid of refugees from the south. A private dwelling was rented for this purpose on Lake Avenue, nearly opposite the present Lakeside Hospital, where temporary assistance was furnished to the sick and needy. At the close of the war the organization was maintained for other charitable work, and in 1866 it was incorporated as The Cleveland City Hospital, under the presidency of Mr. Joseph Perkins. It was not, however, until 1868 that any proper hospital work was undertaken. In that year an alliance was formed between a number of the prominent regular and homeopathic physicians of the city and their respective clienteles, and an organization known as the Willson Street Hospital Association was formed, under the presidency of Mr H. B. Hurlbut. A two-story frame building was rented on Willson Street (now Davenport Avenue), opposite Clinton Park, and the work was begun under the joint direction of both schools of medicine. But little experience was necessary to demonstrate the impracticability of such an arrangement, and in a short time the homeopathic physicians decided to dispose of their stock in the new institution and organize a hospital of their own. Mr Hurlbut generously offered to purchase the interests of the seceding physicians, and soon after purchased and presented to the Association the hospital building and the lot upon which it was located. The institution, thus placed firmly upon its feet, soon demonstrated that it was filling a useful and, indeed, necessary sphere of action, and developed rapidly beyond the limits of its present accommodations. Accordingly, in 1875, it leased from the United States Government the old Marine Hospital for a period of twenty years, and at the same time assumed the almost forgotten title of The Cleveland City Hospital, although it was in no way under the administration of the

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city. When, however, in 1889, the city authorities decided to build a proper city hospital for the rapidly growing community, the Association changed its corporate name to The Lakeside Hospital, the title which it now bears. At the expiration of its lease of the Marine Hospital, in 1895, the plans for the erection of its present spacious and commodious buildings were in process of execution, and active hospital work was suspended until the opening of the new Lakeside Hospital, January 14, 1898. In this hospital the clinical instruction is placed entirely in the hands of the Faculty of the Medical Department of the Western Reserve University.

THE CLEVELAND HOMEOPATHIC HOSPITAL was organized in 1868, and was located originally in the old "Humiston Institute," where some fifty beds were fitted up for hospital purposes. In 1872 the Faculty of the Homeopathic Hospital College purchased the site now occupied by the Homeopathic Hospital on Huron Road, and remodeled the building located thereon for hospital purposes. The new hospital building upon the same ground was opened in 1879.

ST. ALEXIS HOSPITAL was organized in 1884 by the Sisters of St. Francis, under the direction of Bishop Gilmour, of Cleveland. Its first home was a frame building, formerly a school house, on the corner of Broadway and McBride Street, and its early struggles for success were severe and prolonged. Its present fine hospital building was opened in 1897, and the institution is now one of our most popular general hospitals, while its wards afford a field for clinical instruction unsurpassed in the city.

UNIVERSITY HOSPITAL. After the failure of the effort to unite the medical departments of the Western Reserve University and the University of Wooster in 1881, in the readjustment of the hospital privileges of the city the latter institution found itself deprived of the clinical privileges heretofore enjoyed in the wards of St. Vincent's (Charity) Hospital. Accordingly its energetic Dean, Dr Frank J. Weed (1845-1891), organized in 1885 a hospital, under the direct control of the faculty of the medical department of the University of Wooster, in a large dwelling on the southeast corner of Central Avenue and Brownell Street. This took the name of University Hospital, and was administered as a hospital until 1894, when it was superseded by the CLEVELAND GENERAL HOSPITAL located at No. 1914 Woodland Avenue. The latter institution continued the work until 1908, when it was abandoned.

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ST. JOHN'S HOSPITAL, located at No. 7911 Detroit Avenue N. W., was an offshoot of St. Alexis Hospital, organized in 1892 by Bishop Gilmour, for the benefit of the West Side of the city.

THE CITY HOSPITAL was erected on the grounds of the Infirmary in 1889, and is the first city hospital proper (under the administration of the city officials) since the days of the old hospital on Clinton Street in 1837. Its wards are open for the instruction of the students of medicine of all the medical colleges of the city.

THE ST. CLAIR HOSPITAL was organized in 1891 at 4422 St. Clair Street, to administer to the needs of that section of the city.

THE GERMAN HOSPITAL, located at 3305 Franklin Avenue N. W., was organized in 1893 to meet the special needs of our large German population.

THE LUTHERAN HOSPITAL, located at 2609 Franklin Avenue N. W., was organized in May, 1896. The management is in the hands of the Lutheran Church.

THE MATERNITY HOME, on Marion Street, was organized by Bishop Gilmour in 1873 as a lying-in hospital for the poor of the city, in which capacity it has rendered noble service for more than 30 years.

ST. LUKE'S HOSPITAL, on Carnegie Avenue, under the administration of the Methodist Church, was opened for patients in 1908.

PEST-HOUSE

The establishment of a pest-house on Whiskey Island in 1832, for the isolation and care of the cholera patients of that year, has been already mentioned, and is the earliest record of such an institution in the annals of our city. Doubtless its organization was discontinued after the disappearance of the emergency which led to its creation, and we hear nothing further of such a hospital until 1852, when a tract of land on the north side of Croton Street (now Croton Avenue S. E.), between Humboldt and Forest Streets (34th and 37th Streets S. E.), was purchased by the city for the location of a pest-house, which was subsequently erected on this site. Twenty years later, in July, 1872, land for the location of a pest-house was purchased in the township of Brooklyn, but its precise situation I have been unable to determine. Again in July, 1898, the West Park Cemetery

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was purchased, and a pest-house established upon these grounds. Subsequently, however, this site was exchanged for other property on Lorain Street, and the cemetery was restored to its original purposes.

The pest-house on the grounds of the City Hospital was opened in 1901, and removed in 1903 to the township of Warrensville.

The tuberculosis sanatorium of the city was opened on Scranton Avenue July 1, 1903, and removed to Warrensville in 1906. *

PUBLIC HYGIENE

During the first quarter of the nineteenth century it is fair to infer that practically no attention was devoted to the sanitary affairs of the village of Cleveland. At least we read of no measures proposed for improving the sanitary condition of the community, and the general apathy and ignorance relative to public hygiene, prevalent at that time, warrant the belief that our own village was no exception to the rule.

From this point of view the advent of the cholera in 1832 may, perhaps, be looked upon as a blessing in disguise. It awakened communities and officials to a realization of the duties and responsibilities resting upon them with relation to the health and life of themselves and their friends and neighbors, and led to the study of a subject of vital importance to every community, but to which their attention had not been heretofore directed.

The prompt action of the officials of Cleveland in the emergency which confronted them in 1832 has been already mentioned, and the constitution of the first board of health of the village has been described. Whether, after this emergency, the appointment of a board of health was regularly maintained, we have no satisfactory information, but in 1837 the City Hospital is said to have been under the administration of such a board, which consisted of the mayor of the city and three members of the city council, "chosen from that body annually"—an expression undoubtedly implying regularity of administration.

Unfortunately the records of our health department are so defective that they shed very little light upon the sanitary administration of our city until a late period in the century, but there seems no reasonable doubt that a board of health for the city was generally maintained, and we have information of the

*For most of these facts I am indebted to the courtesy of Mr. Starr Cadwallader, Superintendent of the Department of Public Health and Sanitation.

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personnel of the health officers and city physicians at various periods. Thus I quote the following table from the books of our present health office:

HEALTH OFFICERS

1855-1860	Dr F. W. Marseilles	1879-81	Dr W. B. Rezner
1861-62	Dr Samuel Leslie	1881-91	Dr G. C. Ashmun
. . . .	Dr W. H. Capener	1891-93	Dr Jamin Strong (1825-1895)
1870-71	Dr Thomas Hannan	1893-94	Dr George F. Leick
1871-75	Dr J. F. Armstrong	1895-98	Dr J. L. Hess
1875-76	Dr E. H. Kelly	1898-1900	Dr George F. Leick
1876-77	Dr Frank Wells	1901	Dr Daniel Heimlich
1878-79	Dr GuyB.Case (d.1904)	1901	Dr Martin Friedrich

From the same authority I quote the names of the following City Physicians, though the period during which each served is lacking:

Dr Thomas G. Cleveland	Dr S. R. Beckwith
Dr W. M. Prentiss	Dr W. H. Carpenter
Dr Gustav C. E. Weber	Dr J. H. Marshall

Most of these served, I conjecture, between 1850 and 1860, after which the size of the city increased so rapidly that the early single City Physician was necessarily replaced by the numerous district physicians of our modern administration.

In 1874 the sanitary administration of the city was placed under the care of the Police Commissioners, and continued under their direction until 1880, when a Board of Health was again appointed.

Once again in 1892 the Board of Health was discontinued and the sanitary administration of the city was entrusted to the Department of Police, an arrangement which continued until 1903, when the old arrangement was revived and a Department of Health* instituted, which survived until 1907 and is now replaced by the Department of Public Service.

The policy of subjecting the sanitary administration of a large city to the vicissitudes of political supremacy is inefficient and dangerous, and must eventually terminate in serious disaster, but unhappily the millenium of common sense in the masters and the masses is not yet on our political horizon, and we are compelled to make shift with such measures as are rather practicable than desirable.

The medical personnel of the Boards of Health since 1880 has been as follows:

*This consisted of the following officials: Hon. P. W. Ward, Drs Marcus Rosenwasser and James D. McAfee, Messrs George J. Farnum and J. Milton Dyer, and Frank Coombs, clerk.

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1880 . . Drs H. W. Kitchen (1843-1907), J. F. Armstrong, W. J. Scott, A. G. Hart (1821-1907).
1881 . . Drs H. G. Herrick, W. J. Scott, A. J. Cook, H. W. Kitchen, J. F. Armstrong, W. H. Humiston.
1882 . . Drs H. W. Kitchen, J. F. Armstrong, W. J. Scott, A. J. Cook.
1883 . . Drs W. J. Scott, A. J. Cook, W. H. Humiston, F. Fliedner.
1884 . . Drs W. J. Scott, W. H. Humiston, A. J. Cook, F. Fliedner.
1885 . . Drs W. J. Scott, W. H. Humiston, W. T. Corlett, F. Fliedner.
1886 . . Drs W. J. Scott, A. J. Cook, W. H. Humiston, D. H. Beckwith.
1887 . . Drs W. J. Scott, D. H. Beckwith, John Perrier (1842-1903).
1888 . . Drs A. J. Cook, D. H. Beckwith, John Perrier, B. W. Holliday.
1889 . . Drs John Perrier, B. W. Holliday, F. L. Thompson.
1890 . . Drs A. J. Cook, B. W. Holliday, F. L. Thompson.

It would, doubtless, prove interesting to record here how the early pathology of Edinburgh, London and Leyden yielded gradually to that of Paris, and how the influence of the latter school, at a later period, waned before the more brilliant lights of Berlin and Vienna: how the vigorous therapeutics of blisters, emetics, bleeding, calomel, jalap, antimony, etc., the sheet-anchor of our fathers, faded slowly (aided by the Hahnemannian apotheosis of infinitesimals) into a practical therapeutic nihilism: how the saddle-bags and "one horse shay" were metamorphosed into the trim coupé or more imposing automobile of the up-to-date physician, with his modern armamentarium of stethoscope, hypodermic syringe, clinical thermometer and pocket-case of stereotyped tablets and granules: how the keen observation, independence and all-round knowledge of our early colleagues have been largely lost, and replaced by the often one-sided and deceptive fiat of the modern specialist: how the humane and sympathetic side of medical practice has withered before the dazzling light of modern exact diagnosis and scientific objectivity. But these facts are neither obscure, nor are they peculiar to the experience of our own city. They may be studied at leisure in our encyclopedias and general treatises on medical and social history. The present paper must be limited to those humbler data, whose local character and comparative insignificance render them specially liable to be lost in the gathering twilight of the past, and which, once lost, would probably be regarded as scarcely worthy the labor of recovery. Gathered at odd intervals, and for various purposes, these data are here grouped together and presented to the profession, in the hope that they may be useful for future reference, and may serve, at least to some extent, to preserve the more recondite records of a brilliant century.

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The Cleveland Medical Journal

CONTINUING { THE CLEVELAND MEDICAL GAZETTE and THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

The Official Organ of the Academy of Medicine of Cleveland

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EDITORIAL

The Tuberculosis Sanatorium Bond Issue

At the special election of April 20, 1909, a bond issue of $250,000 for a tuberculosis sanatorium, at Warrensville, will be placed before the voters of Cleveland. The need for this institution will be readily conceded by all physicians who have had any experience in handling cases of tuberculosis among the poor. The present institutions for the care of the tuberculous are totally inadequate to provide for those who apply for help.

The keynote of the Washington Congress on tuberculosis was that "the most important single thing to do, if we wish to decrease the prevalence of tuberculosis, is to provide suitable institutional care for the intermediate and advanced cases." For one who is not familiar with the conditions, no further argument than an attempt to get a patient in the Scranton Road hospital is necessary to convince him of the immediate need of more beds for the care of the tuberculous.

The only objection advanced against the bond issue is that the present administration cannot be entrusted with the expendi-

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ture of this money. Anticipating this objection, the officers of the Anti-Tuberculosis League secured written assurance from the city authorities to the effect that the advice of a committee of the League would be sought in all plans for the construction and management of this institution. Acting upon this assurance the League is making an appeal to all voters to support the bond issue irrespective of party affiliation. The bond issue is for a comparatively small sum. Little of the $250,000 could be wasted or diverted, when such disinterested, public spirited men, as would represent the League, pass upon the plans for the expenditure of this sum. Even the most skeptical and partisan politician could not but see what a shortsighted blunder it would be for an administration which must court public favor, before it can be re-elected eight months hence, to attempt to divert anything from a fund which even in its total will be insufficient to provide an adequate plant.

We urge every voter to rise above narrow partisanship at this election. The call for this investment in human health and life and happiness must be heeded.

If the bond issue shall fail to receive the necessary two-thirds vote, it will not be due to the open opposition of a few, but to the indifference of the many. Do not fail to cast one vote in favor of the bond issue.

The results obtained at the Warrensville Sanatorium have been quite satisfactory and furnish the most convincing argument for increased facilities for the proper handling of the city's tuberculosis cases. The following details have been supplied by Dr Joseph Placak in charge of the sanatorium.

Since the opening of the institution on July 30, 1906, up to January 1, 1909, 616 patients have been treated, 425 males and 191 females, 331 patients being married. They represented 23 nationalities, Americans predominating, and those of Irish birth coming next.

Quite a large proportion, 221 patients, had been addicted to the excessive use of alcohol for at least a year previous to admission. This had been undoubtedly a predisposing factor in the etiology. Under treatment most of these patients improved rapidly and satisfactorily, but after leaving the institution they almost all resumed their former habits and had a recurrence which was much harder to treat satisfactorily than the initial attack.

An apparent cure was effected in 83 cases. The disease was arrested in 251 cases and of these some 67 were able to resume

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their former occupation. No improvement took place in 165 cases and many of these were returned to the City Hospital. Forty-nine of the patients died, 19 of them in the first five months, which is a larger number than in any year since. This was due to the fact that when the sanatorium was opened a large number of advanced cases were transferred to it from the City Hospital and many of these died soon afterwards.

The relatively small number of cures is explained by the fact that but two of the whole number of patients could be classed as incipient cases. It is very difficult to get the cases at an early stage of the disease when the probability of cure is greatest. At the present time, owing to the limited accommodation, only such cases are admitted as are thought will be benefited. With a larger institution patients in all stages of the disease will be accepted.

Advantage has been taken of the immigration laws and 17 patients have been deported. The law provides that an immigrant who has had tuberculosis prior to his coming to this country may be deported subsequently if he becomes a public charge.

The greatest problem in the prevention of tuberculosis is the management of the irresponsible tuberculous patient who is aware of his condition and the dangers of his spreading infection and yet who wilfully neglects precautions and expectorates indiscriminately. Ultimately some legislation must be secured providing for the commitment to an institution of such a person to prevent his disseminating infection.

The treatment employed has been mainly abundance of fresh air, liberal diet, exercise and graduated labor. Medicinal measures have also been used and during the first five months nearly 10,000 subcutaneous or intramuscular injections of Deny's tuberculin, tuberculinum purum and succinimide of mercury have been given. A more detailed report of the results of this latter treatment will soon be made.

A Modified Method of the Serum Diagnosis of Syphilis

The discovery of Treponema pallidum and the establishment of the etiologic relationship of the parasite to syphilis led to the hope that a valuable aid to the diagnosis of the disease had been found. This hope has been realized only in part, although our knowledge of the histopathology of lues has undoubtedly already been much helped and will be even further advanced. From the

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practical standpoint an early microscopic diagnosis of a suspected primary lesion is possible and permits the immediate beginning of treatment, but in other respects the detection of Treponema pallidum is not so helpful from the standpoint of clinical diagnosis because the parasite is found with the greatest difficulty in the atypical late lesions, those manifestations in which a diagnosis is most difficult and important from every standpoint.

It was particularly in this group of cases that the utilization of the Bordet-Gengou phenomenon of complement fixation for the detection of syphilis antibody in the blood-serum, as proposed by Wassermann, seemed to offer aid. The Wassermann method, however, requires a trained technic and the equipment of a serological laboratory, as well as guinea pigs for the furnishing of complement and sheep for the furnishing of red corpuscles. While the physician might hope, with the proper assiduity, to develop the technic, and while the presence of the necessary laboratory apparatus in his office might be almost as impressive as an X-ray machine, the office is hardly the ideal place for sheep or even guinea pigs, and the Wassermann test has not been of practical value to the physician.

Noguchi has recently (*The Journal of Experimental Medicine,* XI, 1909, 392) so modified the Wassermann method as to make it not only practicable but also more accurate. The increased accuracy is dependent upon the use of human corpuscles instead of sheep corpuscles. It has been found that human serum may contain enough natural antisheep amboceptor to vitiate or prevent the specific reaction in the presence of syphilitic serum. With this exception Noguchi's method is identical in principle with Wassermann's and requires the same five essentials: (1) antihuman hemolytic amboceptor, the serum of a rabbit which has been repeatedly injected with washed human blood corpuscles; (2) complement, fresh guinea pig serum; (3) antigen, an alcoholic extract of fetal syphilitic organs or of lecithin; (4) a suspension of human red blood corpuscles, prepared by mixing one drop of blood with four cubic centimeters of normal saline solution; and (5) the serum to be tested. The reaction is positive if, in the proper mixture of the above, hemolysis is prevented or partially inhibited. In principle Noguchi's method appears to be more accurate than Wassermann's and about as difficult of performance.

Noguchi's modification which is most valuable from the standpoint of practicability is dependent upon the fact that the

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reagents necessary, the antihuman amboceptor, the complement and the antigen, retain their efficiency when strips of filter paper are saturated with them and allowed to dry. The preparation of these dried and properly standardized reagent slips should be the function of the commercial biological laboratories. In this modification there are added to the tube containing the patient's serum and the normal human red corpuscles the complement and antigen slips and, after the proper interval, the amboceptor slip. Such, in brief, is the method. It is hardly necessary to add that control test must be made upon normal and known syphilitic sera in order that one may properly appreciate the result obtained.

Noguchi has found his simplified method to be more accurate than that of Wassermann. It is certainly simple enough, if the reagent slips are placed upon the market, to make the test of great use to the practising physician. To just what degree the Wassermann test is specific has not yet been determined, because the difficulty of the method has precluded its use in a sufficiently wide range of cases. A modification which permits of the routine use of the test in suspected cases ought soon to decide the value of the reaction in the diagnosis of doubtful cases. How valuable the test may be in the diagnosis of tabes and the other parasyphilitic diseases must depend upon whether the saying, "no syphilis, no tabes," is really axiomatic.

The First Medical Commission in an Ohio Murder Trial

The first appointment of a commission of physicians in Ohio, to examine a prisoner as to his mental condition, was made in Cleveland, March 4, 1909, by Judge Thomas M. Kennedy, of the criminal branch of the Court of Common Pleas, acting on the suggestion of Jno. A. Cline, County Prosecutor, and attorneys M. A. Foran and Samuel Doerffler, acting for the defendant.

The prisoner, Harry L. Holden, of Lorain, Ohio, was indicted by the grand jury of Cuyahoga County, for first degree murder, he having been charged with killing Barney Jacobs and his son, Julius, pawnbrokers, in their store, Superior Viaduct, on the night of December 7, 1908. His defense was insanity due to heredity and the abuse of cocain and opium to which he was addicted.

The commission met at the county jail with the family physician and after several examinations and consultations framed a report to which was attached a statement of the blood-count and

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urinary analysis, setting forth their findings which showed that the prisoner was not only sane at the time of these examinations but also on the day the alleged crime was committed. A copy of this report, duly signed by all commissioners, including the family doctor, was mailed to the judge, the attorneys for the defense and the prosecutor. The jury returned a verdict of "guilty of murder, first degree."

That such a move is a decided step in advance cannot for a moment be questioned and those concerned certainly should have the support of all physicians as well as the public at large. New York, St. Louis, and other cities have attempted to dispose of medicolegal problems on this basis and it is gratifying to know that Cleveland is keeping pace with these reforms.

The Periodical Examination of Life Insurance Policy-Holders

A valuable plan has been outlined by Burnside Foster, St. Paul, Minnesota, in a paper recently read before the Association of Life Insurance Presidents, in New York City. This proposes a system of periodical examinations of policy-holders by the company's medical examiner in order to detect any evidences of incipient disease. Steps might then be taken by the insured to institute proper treatment and thus prevent the advance of the disease. Such a procedure would be of great benefit both to the policy-holder and also the company, and its value in prolonging the lives of the insured and thereby increasing the number of premiums paid to the company would amply compensate for any expense that might be entailed in making such an examination. The insured would be put to no expense himself in having such an examination made and the average man would, in all probability, be only too glad of such an opportunity of determining the actual condition of his health. In Europe some of the insurance companies have aided in the establishment of sanatoria for the treatment of tuberculous cases and feel that they have been justified in so doing, not only from a philanthropic standpoint, but from a pecuniary one as well.

As is pointed out in the paper, when preventative medicine becomes actually preventative a number of diseases, notably communicable ones, will become practically extinct. In order to accomplish this, concerted action is imperative. The possibilities in this direction have been demonstrated by the United States

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Government in the control of the diseases of domestic animals, as carried out by the Department of Agriculture. No such extensive work has been done by the Government in connection with human diseases and if the life insurance companies would but exercise the weight of their influence in legislative quarters, much might be accomplished in persuading the Government to greatly extend its activities along these lines. Ultimately, medicine will be mainly prophylactic and it is our opinion that it will become largely a State function, somewhat similar in character to that of the present Marine Hospital Service of the United States Government carried out on much wider lines.

Certain objections might, of course, be raised by the family physician to the periodical examinations of a policy-holder, who happened to be one of his patients, by the insurance company's physician. He might feel that his practise was being invaded, but this could be easily obviated by the company's insisting that their medical examiner should merely make an examination and that he should refer the insured to the family physician if any treatment were necessary.

Department of Therapeutics

CONDUCTED BY J. B. McGEE, M. D.

The Heart in Acute Disease: Beverley Robinson, in the *American Journal of the Medical Sciences* for December, considers that the condition of the heart, together with its proper management in the early period of convalescence following acute infectious disease, is, without doubt, a subject of very great importance to every practitioner of medicine. Upon prevention of cardiac dilatation depends mainly all future vigor and well-being in a very large number of instances. This is notably true in typhoid fever, diphtheria, influenza, pneumonia, and scarlet fever, and even more so in acute articular rheumatism, although here we have a problem which is somewhat unlike that connected with these other acute infectious diseases. In typhoid fever he does not believe, as a rule, it is wise for the patient to sit up in bed, even for a short time, until several days—usually a week or 10 days—after the temperature has reached the normal. He does not believe he should leave his bed until he has sat up in bed several times at least without its causing any very considerable change in his heart action or pulse. If sitting up in bed causes much increased rapidity of pulse, with irregularity and occasional intermittences, the indication is to go slowly and allow very little sitting up or none at all for a while. What is stated as regards sitting up in bed is true again when the patient has been permitted to get out of bed to walk into an adjoining room or to go down stairs. The first time a patient sits up in bed, or gets out of bed, we should expect an

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increased rapidity of the pulse and frequently a blowing systolic murmur indicative of mitral inadequacy. But in a day or two, or a few days at most, the pulse should be less rapid, and while the blowing murmur may be still present, the heart action should be more forcible and the pulse less depressible. If the temperature instead of being normal is subnormal—down to 97° or to 97.5°, as a rule he objects to the patient's leaving bed. When, instead of increased rapidity of pulse and heart, notable slowness of both occurs, he is even more solicitous and careful of his patient and dreads more the advent of sudden heart failure. Finally, when the other cardiac signs and symptoms are practically normal during the convalescent period, he has come to the conclusion that when a soft, blowing, mitral,, systolic murmur exists it is due not to mitral regurgitation, through lack of closure of the orifice caused by want of cardiac power, but to improper or badly co-ordinated nervous control of the cardiac systole. Of course with any one recovering from typhoid fever, particularly one whose previous life has been preeminently an intellectual one (lawyer, clergyman, scientist, etc.), it is especially desirable during convalescence to avoid or limit continuous mental effort. Drugs may be used beneficially during the acute attacks. Of these he considers none so valuable as strophanthus by the mouth or hypodermically. Afterward, strychnin is useful in certain cases, coca in others, and digitalis in a few instances in small or moderate doses, especially the infusion made from fresh English leaves. In sudden heart failure during the early convalescence of acute infectious disease, suprarenalin or adrenalin by the mouth in tablet triturates of 1/20 grain each or by hypodermic, is unquestionably very useful, and he has learned to place great reliance on tincture of strophanthus by mouth or hypodermically. He emphasizes the great importance of rest, absolute in extreme cases and prolonged for many days or weeks. Great or even moderate mental strain should be avoided during several months at least and this is true also of severe, continued, bodily exertion. The immediate risk to life is probably greater in the convalescent period of diphtheria than in the other acute infectious diseases. In scarlet fever, the complicating nephritis of the third or fourth week of the disease throws additional strain upon an already weakened heart and dilatation may follow. In croupous pneumonia we should guard our patients especially against blood-clotting which is prone to occur, and this we may do by carbonate of ammonium judiciously given or by citric acid in the form of lemonade. As to la grippe, he believes a moderate amount of quinine, or better still the compound tincture of cinchona, is not only a general tonic but possibly has special value as a protection against cardiac dilatation. In the early convalescent period after infectious disease iron is useful with evident anemia, whether this be due to the acute disease or not, and it may strengthen the weak heart to resist dilatation.

Tuberculosis: *The Medical Record* for February 27 calls attention to the passing of superalimentation in tuberculosis. Up to within a comparatively recent period forced feeding was regarded as perhaps the most important element of the thera-

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peutic tripod in tuberculosis. Even today many practitioners regard it as a triumph of good management, if they can get two quarts of milk and a half a dozen raw eggs into a stomach already laboring with the disposition of three or four hearty meat meals a day. Such an easy and logical prescription as to force food on the poorly nourished impressed physician and patient alike and an eager striving after fatness was begun. Superalimentation rests upon fallacious theories and in practise is productive of great harm. It is plain that one cannot stuff the alimentary canal with great quantities of putrescible proteins without danger of absorption of the poisonous products of intestinal putrefaction. Fortunately the evils of overfeeding in tuberculosis are now recognized by the majority of therapeutists and most modern authorities recommend caution in this respect . The patient is no longer told to eat all he can and then a little more, but the diet prescription is now, or should be, as carefully thought out as that for climate or drugs. If the patient is of normal weight, or even a little under it, and is not losing flesh, his diet is evidently sufficient for his needs and nothing is to be gained by increasing it. If he is overweight, and still gaining, the diet should be reduced, for an under amount of adipose tissue is of no advantage to the tuberculous. If there is rapid loss of flesh in spite of a full dietary nothing is to be gained by adding to the amount of food but the cause of the disordered metabolism must be looked for with a view to its correction if possible. Of course if there is anorexia or indigestion, the problem of the physician will be to provide for better nutrition by stimulating the appetite and promoting digestion. But with the increase of food, there should be no disproportionate increase of proteins. The evil of the past has been a protein surfeit.

Insomnia: Alfred Gordon, in *The Therapeutic Gazette* for February, considers the treatment of insomnia as being naturally divided into as many chapters as the conditions creating the disease. Moreover, in some individuals the habit and craving for drugs may be acquired and consequently become dangerous. Before we have recourse to drugs we must employ all other means to induce sleep. It is therefore a natural and not a drug sleep that we must endeavor to obtain. Remove from the economy, as far as possible, elements that are capable of producing cerebral irritation, stimulation and congestion. No matter how moderate and temperate the individual may be, he forbids him the use of heavy meals at night. All three meals should not be abundant. Milk is an ideal food in such cases and all stimulants including tea and coffee must be removed. Tobacco must be reduced to a minimum or at all events no smoking should be done in the evening. Constipation should be immediately remedied. In addition to these dietetic measures, hydrotherapy is a powerful adjuvant. A lukewarm bath of half an hour's duration, a brief shower-bath (one-half minute) of cold or warm water, wrapping in a sheet wet in tepid water for one minute and in some cases a cold wet towel placed on the neck when in bed are means which sometimes succeed in inducing sleep. In certain cases these means fail and only then medication must be

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resorted to. A small amount of sodium or strontium bromid, say 10 grains every two hours, may be perfectly sufficient. Veronal five grains with codein ⅛ grain, repeated every hour for three or four doses if necessary, is a very good hypnotic, and trional and sulphonal may accomplish the same results. In insomnia from painful conditions the indications are evident, as soon as the pain is removed a natural sleep will ensue and in the wakefulness which sometimes follows he especially recommends a tepid bath of 15 to 30 minutes duration. One must be very careful in prescribing hypnotics to those with poor general nutrition as he has seen disastrous results and with such cases he personally omits drugs entirely and uses a gentle general massage, a sponge bath and outing before going to sleep. A continuous effort must be made to improve the patient's general condition. In infectious diseases the insomnia is intimately associated with the accompanying fever and we must therefore endeavor to decrease and remove the latter. In insanities, the experience of the majority is in favor of bed treatment and *isolation*. In cases of deliria, bed and isolation are not sufficient and hydrotherapy is of great service. As to drugs, veronal with codein, trional or sulphonal are the main ones of value. He also uses paraldehyde, hyoscin, scopolamin and chloralamid and in delirium tremens a combination of chloral and morphin is particularly efficient.

Drugs in Gynecology: In the *New York Medical Journal* for February, H. J. Boldt discusses some drugs that may be of value in gynecologic patients. While it must be acknowledged that medicines internally administered are not likely to have much influence on local conditions in gynecologic affections, it happens very frequently that the local conditions of a patient are benefited or cured, though she is not conscious of the improvement. It has seemed to him that in pelvic disorders accompanied by an extremely nervous condition, with an excessive secretion of phosphates in the urine, the nervous symptoms of the patients were benefited by small doses of calcium glycerinophosphate. Large doses should be avoided so as not to interfere with digestion and the drug is to be taken during or after the meal. He has found apiol a very satisfactory emmenagog in patients who are usually regular and in whom the amenorrhea is not due to a physiologic cause. In such cases a capsule of apiolin every three hours for two or three days generally suffices to bring about the menstrual flow. Cases of painful menstruation with scanty flow, in persons otherwise robust and without any pathologic pelvic condition, are often benefited by a capsule of apiolin three times daily beginning about one week before the expected flow and continued through the period. In amenorrhea of anemic and chlorotic persons, arsenic is occasionally more serviceable than other drugs, acting as a direct stimulant to nutrition and checking the retrograde metamorphosis. Hydrastis, gossypium, ergot and aletris have an important place in gynecologic materia medica. Any one of them may be employed with success in prolonged or too profuse menstruation with or without pain. Some cases yield more readily to one drug and others to another. He has observed several times that when one of these

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remedies alone, or any two combined, did not give a satisfactory therapeutic action, a combination of the four often quickly produced good results. These medicines are especially applicable in those cases of chronic metritis in which the patients menstruate so freely and with so long continued a flow of blood, that it is detrimental to their general condition. In some patients with myoma, who decline operation, the bleeding is also somewhat checked by the above combination or by hydrastis alone. In scanty menstruation with intense ovarian dysmenorrhea and without palpable lesions in the pelvic organs, he prefers the chlorid of gold and sodium. Strychnin is of value for its tonic effects and in anemic and chlorotic cases he uses reduced iron, hemogallol, or Blaud's pill. For a nerve sedative and somnifacient he prefers bromural in doses of gm. 0.6 (9 grains) at bedtime.

Erysipelas: Aspinwall Judd, in the *Medical Record* for February 3, describes the local use of carbolic acid and alcohol in erysipelas and refers to the multiplicity of remedies advised. About eight years ago he began to treat all cases of erysipelas by the method to be described. Since then he has seldom failed to secure a satisfactory result and has discarded all other remedies in these cases. He has treated 82 patients with five failures, 10 delayed recoveries and 67 complete remissions of symptoms in from 12 hours to four days. These cases have included not only the beginning stages of facial and other forms of erysipelas, but those in the advanced stages in which the area involved has varied from the face only, to the face and scalp and with marked general septemic symptoms. Almost the first result noticed by the patient is a complete cessation of the unendurable itching, burning and throbbing. Usually with a few hours the nausea, if such be present, subsides and within 24 hours the temperature sinks to early normal, the appetite returns, the pulse very rapidly falls in the severe cases from 120 or more to nearly normal and, except for the diminished swelling which remains for 24 or 48 hours longer, the patient is relieved from his distressing symptoms. The technic consists of swabbing with 95% carbolic solution the entire surface of the involved area and about a half inch of the surrounding apparently healthy skin. This is left until the purplish color of the inflamed area is replaced by a pretty complete whitening of the skin. It is essential to the success of the procedure that we await this whitening before proceeding to the next step in the operation. On the other hand, if we allow the whitening to proceed to a thorough blanching we shall produce a burn and a slough of the skin, which will prove painful to our patient and add nothing to the efficiency of the treatment. When large areas are involved it is advisable that only a portion be painted at a time. The second step consists in going over the whitened area very thoroughly with a swab saturated with pure alcohol. If this is done thoroughly the whitened area becomes once more pink and the alcohol must be applied until this is accomplished. After this we proceed with other areas, first using the carbolic and then neutralizing with

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alcohol until our operation is complete. It is essential that we should include a half inch of the apparently sound skin as the bacteria of erysipelas are found beyond the apparently involved area. If the treatment is properly carried out no scarring results. The superficial layers of the skin come off as in a mild sunburn and the skin beneath is only slightly tender. One application is usually sufficient to control the inflammation and the aftertreatment consists of moist dressings of saline or 1 to 20000 bichloride solution.

Calcium Creasote: In the February number of the *Monthly Cyclopaedia and Medical Bulletin,* Louis Kolopinski considers the treatment of typhoid fever with solution of calcium creasote. This preparation dates from the days when wood-creasote was regarded as a specific in pulmonary tuberculosis. The creasote so combined can be taken in doses of any amount without producing poisonous results. It is produced by combining calcium hydrate with creasote and the form employed is that of a liquid with a specific gravity of 1.010 to 1.012. A pound of creasote yields about 20 pints of the preparation which has a yellow color turning red on keeping, and of which half a fluid ounce represents 10 to 12 minims of creasote. Its taste is sharp and later peppery. It has a slight odor of creasote but no irritating or caustic action and can be swallowed undiluted. In the treatment of typhoid fever with calcium creasote, certain principles must be known and followed for a rational and successful result. In a fresh case the prime principle is to smother or abort the disease; when this effect fails, owing to a complication, recrudescence or relapse, the treatment continues as before. When an early cure is not obtained a safe recovery in the shortest time is sought. The calcium creasote must be given in the maximum practical doses. These are for a child of six or seven years, one teaspoonful every two hours, for an adult two or four teaspoonfuls in the same length of time. The solution is given day and night for the greater part of the first week until falling temperature, normal pulse and normal faculties allow the discontinuance of the night doses. It is advantageous to offer the liquid well diluted in half a tumblerful of water. It is never refused by the patient and most of them declare that it refreshes and revives them, clears and composes the mind. Nausea and vomiting may occur either from crowding the creasote or from milk and therefore raw milk may be replaced with a boiled diluted milk or the calcium creasote may be omitted for a few hours or the dose reduced. Such symptoms and diarrhea are transient. At the end of seven to 10 days the medicine is continued at three-hour intervals. When the temperature is normal or subnormal four doses a day are given until the patient returns to an ordinary varied diet. This is the sole medicinal treatment but it must be accompanied by certain essentials of nursing, such as attention to the patient's rest and frame of mind, the functions of his body and the administering of daily estimated food. Solution of calcium creasote subdues the fever by lysis either within 10 days or in two or three weeks. The week of rising temper-

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ature, the two weeks of steady elevation and the week of decline—the typical fever course of Wunderlich, is not found. The typhoid state in typhoid fever no longer seems an appropriate term. He has treated 118 cases by this method and believes that a remedy with the properties of calcium creasote abrogates or prevents the septic secondary infection present in the disease.

Feeding in Typhoid: *The Therapeutic Gazette* for November says that there are few subjects in clinical medicine at present of greater importance than the question of proper feeding of typhoid fever patients. For the past 10 or 15 years a much more liberal diet than formerly has been advocated and it has been conclusively proved that such an increased diet is in no way deleterious but on the contrary is distinctly advantageous. As Shaffer points out, the destruction of fat leads to acidosis with a loss of alkali from the tissues. A condition has thus been produced which is in one sense allied to that sometimes seen in severe diabetes and for this reason it is not rare for acetone to appear in considerable quantity in the urine of typhoid fever patients. In other words a patient fed on a low diet during typhoid fever is really suffering from starvation acidosis and if this be true it is evident that a low diet is distinctly disadvantageous. As Ewing has pointed out, many of the symptoms of typhoid fever in severe cases in which toxemia is marked are probably due not alone to the poisons produced by the invading micro-organism, but to the autointoxication resulting from the burning of 30 pounds of body tissue in three weeks. There are, therefore, three states from which the average typhoid fever patient who is fed upon a low diet suffers: First, the infection which produces the toxin; second, the combustion of his tissues with its attendant pyrexia, and third, partial starvation, as it cannot be denied that a patient upon a milk or broth diet is partially starved. It has been found that a full carbohydrate diet or protein diet materially protects the body tissues in animals with other infections and Shaffer and Coleman found that in typhoid fever they were able to diminish the loss of body nitrogen very markedly by a proper carbohydrate diet to which was added a moderate amount of protein. The carbohydrates are given in far larger amounts than the proteins because it has been proved that they spare the body protein in health more than any other food stuffs and it has been proved that this is also true in fever. Fats cannot be given in large quantities because they are difficult of digestion, and produce disagreeable symptoms. As it has been proved, that considerable quantities of carbohydrates are advantageous, the question is whether there is any objection to their administration in adequate quantities. Recent experiments prove that in typhoid fever the impairment of digestion for ordinary food stuffs is by no means so great as was thought in the past, and this is especially so in regard to carbohydrates. It is the custom of the author to administer carbohydrates such as well-cooked barley, rice, cornstarch and wheat, deprived of course of all extraneous material, from the end of the first week on through typhoid fever. These are given in addition to such quantities of milk as the patient can take and with

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one to four raw or very soft boiled eggs in 24 hours, each dose of starchy food being given with pancreatin or takadiastase and each dose of protein with hydrochloric acid and pepsin.

Veronal in Morphinism: In the *Medical Council* for March (from *Journal of Inebriety*), George E. Petty calls attention to the fact that veronal has no curative power over morphinism, as has been claimed, and no value in the withdrawal of morphin in the case of habitues. He asserts that such teachings are erroneous and dangerous. He has found no such action of veronal over morphin, the demand for the latter being equally as great as it is in such cases when no veronal has been given. Suspension of peristalsis and constipation were as marked in the cases in which the veronal preceded the morphin, as it usually is when morphin alone is given. The fact that morphin checks secretion and arrests peristalsis, thus locking up the products of waste in the system, is the chief reason that prolonged use of that drug results in an addiction. The autotoxemia thus induced is the essential pathology of morphinism. Since veronal does not overcome or even lessen this effect of morphin it cannot "prevent morphinism" or to any extent lessen the danger thereof. He believes the promulgation of such manifestly false doctrine is inexcusable.

Incompatibilities: William J. Robinson, in the *Critic and Guide* for March, states that physicians who are not thoroughly familiar with the chemistry of the products they prescribe, the decompositions they are likely to undergo and the new compounds they may form, had best stick to a single chemical unless they are sure the formula for the combination of two or more is right. Within one month he has seen two striking examples of incompatibility. In one instance the physician prescribed protargol and zinc sulphate in one injection; in the other argyrol and zinc sulphate. The intention in each instance was a laudable one, the physicians wishing to combine the gonocidal effect of the silver compound with the astringent effect of the zinc salt, but the prescribers defeated their object entirely by decomposing the silver salts and producing a very irritating mixture, the urethral canal becoming very sore after the use of the injections. Another well-known incompatible atrocity of which some physicians are guilty is the prescribing together of silver nitrate with cocain hydrochlorid or even sodium chlorid, a precipitate of silver chlorid is formed which destroys the astringent and bactericidal properties of the silver nitrate. Of course one sometimes prescribes an intentional incompatibility as in the well-known prescription of zinc sulphate and lead acetate, so often used. But only he should venture to prescribe several compounds in the same mixture who knows what he is about. Otherwise he may have some unpleasant surprises.

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Academy of Medicine of Cleveland

The sixty-fourth regular meeting of the Academy was held at the Cleveland Medical Library, Friday, February 19, 1909, the President, W. E. Lower, in the chair.

The report of the Council was read by the Secretary and was in part as follows:

Oliver P. Walker and Earl W. Keyes were elected to active membership. The resignations of Cora Sechrist and R. H. Snyder were accepted.

An informal discussion upon the legal aspect of the illegal practise of medicine was held with County Prosecutor Cline.

C. B. Parker and W. H. Weir, representing the CLEVELAND MEDICAL JOURNAL, presented the matter of the relationship of the JOURNAL and the Academy and the possibility of the taking over of the JOURNAL by the Academy. A committee composed of W. E. Laffer, J. E. Cogan and T. Sollman was appointed to investigate this matter.

W. E. Bruner and C. J. Parkin, representing the State Commission for the Blind, requested an endorsement of the Commission's work. A committee of three was appointed to investigate and report. The following report was adopted:

Whereas, the Council of the Academy of Medicine of Cleveland is thoroughly in sympathy with all efforts to prevent blindness and to ameliorate the condition of those who are blind and are favorably impressed by the work already done and the results secured by the State Commission for the Blind,

Therefore be it Resolved, that the Council of the Academy of Medicine endorses the most liberal appropriation possible for the purpose of completing the enumeration of the blind, of preventing blindness through ophthalmia neonatorum, for the purpose of industrial education and opportunity for self support of the adult blind without interfering with the State and County aid to those who require such assistance.

The program was as follows:

1. Treatment of Puerperal Pyemia by the Ligation and Excision of Thrombosed Vessels, J. Whitridge Williams, Professor of Obstetrics, Johns Hopkins University.

The literature upon the subject was first reviewed and the results of this treatment, both abroad and in this country, were given. The technic was described and the following conclusions were reached:

(I) As the average mortality of puerperal pyemia was in the neighborhood of 66 2/3%, any operation which offered a chance of reducing it should be welcomed.

(II) This paper was based upon the study of 56 cases of thrombophlebitis treated by the excision or ligation of one or more pelvic veins. Fifteen operations by the extraperitoneal and 41 by the transperitoneal method gave a gross mortality of 80% and 43.9%, respectively. Not an appreciable difference from that following expectant treatment.

(III) Many of the reported cases were not susceptible of cure and the technic was often faulty. Upon deducting such cases, a corrected mortality of 40% and 21.4% for the two types of operation was obtained. In five personal cases the gross mortality was 20%.

(IV) When the thrombosis was limited to the spermatic veins the mortality should not exceed 10%, provided the operation was performed early; as compared with 25% when other vessels were involved.

(V) Operation should be undertaken as soon as a positive diagnosis could be made, which was assured whenever a worm-like mass could be palpated at the outer portion of the broad ligament in patients suffering from chills and a hectic temperature.

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(VI) Excision of the thrombosed vessels was rarely necessary and should be substituted for ligation only when the vessel appeared likely to rupture, or was surrounded by periphlebitic inflammation.

(VII) The transperitoneal was preferable to the extraperitoneal route. It was technically easier, afforded a much more extensive view of the vessels, and with proper precautions scarcely increased the likelihood of peritoneal infection.

(VIII) The vaginal route suggested by Taylor, Latzo and others was applicable only to the small class of cases in which the thrombotic process was limited to the vessels of the broad ligament. As such a diagnosis could not be made, he considered that laparotomy should be done in all cases in which interference appeared indicated.

2. Modes and Sources of Infection in Tuberculosis, Mazÿck P. Ravenel, Professor of Bacteriology, University of Wisconsin. (Appearing in full on page 179.)

J. H. Lowman, in the discussion, stated that the question as to the extent of bovine tuberculosis and the contention, that it did not infect human beings by way of the intestinal tract, had been pretty conclusively disproved by this paper, as had also the theory that the infection in tuberculosis was always inhaled. At one time or another every disease had been thought to be inhaled, this theory as regards tuberculosis was the last to be attacked and was offering some resistance. The question was not entirely settled, and it was possible, no doubt, to become infected by inhaling bacilli, although it was clearly proved that infection could also occur through the intestinal tract. This fact should be given proper attention in the care and feeding of children.

H. G. Sherman thought the statements not only illuminating but startling. The State Board of Health of Ohio stated that no consideration need be given to the possibility of the spread of bovine tuberculosis through the milk supply as cases of infection by this means were so rare as to render preventative steps unnecessary. On the other hand at a recent meeting in Washington the prevalence of tuberculosis among cattle and of this form of tuberculosis in human beings was fully demonstrated. He wished to ask whether the spread of bovine tuberculosis was not due to unclean milk, especially due to contamination of milk by manure. The New York City Board of Health stated that 600 pounds of manure were to be found in that city's milk supply daily. In Berlin 375 pounds were to be found daily. In Copenhagen an appreciation of the commercial value of clean milk had been brought home to the farmer, but here it was found very difficult to do so. He was particularly interested in the subject through his connection with the Sanitation Committee of the Chamber of Commerce. He wished to inquire as to the reliability of the tuberculin test in cattle. It was claimed that 19/20 of all the milk shipped into Cleveland today was infected with tubercle bacilli. If bovine tuberculosis was communicable, as was apparently proved beyond doubt by this paper, we were criminally responsible for allowing the infection of children and others through our contaminated milk supply.

M. Metzenbaum thought that this subject was one not only for physicians, but that the general public should understand it. He, therefore, thought that the daily papers of this city should give publicity to the facts in this paper.

M. Friedrich stated that over 7,000 of the 30,000 cows furnishing milk to Cleveland were tuberculous, so one could readily imagine the danger of infection from this source. Every cow should undergo a tuberculin test, but Cleveland authorities could not fight tuberculosis unaided by the State authorities. If we insisted that the dairymen test all their cows they would simply refuse to do so and ship their milk elsewhere.

H. J. Gerstenberger said that the milk question was a difficult one to

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solve, providing one wished to be absolutely positive of the freedom of the milk from tubercle bacilli. He had had some experience with the tuberculin test which proved to him that when made simply once a year it could not be depended upon. A herd of cows which were supplying milk for babies had been tested with tuberculin. Six cows reacted and were killed. After a year another test was made and six more, which had not reacted twelve months before, gave a positive result. This seemed to prove that these cows had tuberculosis the year before, even though they had given a negative reaction. It was well known that it sometimes took three months before a cow, which really had tuberculosis, would react positively with tuberculin. This would explain the above mentioned result and would make it necessary to test the same cattle oftener than once a year, possibly every three months, if one wished to be absolutely sure that the milk was at all times free from tubercle bacilli. In reply to a question by Prof. Ravenel as to whether there had been new additions to the herd after the first test and whether the premises had been disinfected or not, he would say that new animals had been added, but had been tested and found negative a few days before; also that the premises had been disinfected by the health authorities. He could not vouch for the thoroughness of this disinfection as he had not been present. No physical examination of the cows had been made and therefore the presence of a far advanced case of tuberculosis could not be excluded. At the second test they tried to obviate this possibility, but two veterinarians who were asked about it replied that they could not make a physical examination of the chest and depend upon the result obtained. He wished to ask Prof. Ravenel as to his experience in this respect. He believed that it would take many many years before all the milk would meet the requirements and therefore advised the boiling of all milk, the purity of which was doubtful. The fear of causing scurvy by keeping children on boiled milk must not be considered in such instances. He asked Prof. Ravenel why it was, if infection by way of the alimentary tract was so very common, that miliary and generalized tuberculosis was not of much more frequent occurrence.

W. T. Howard said that the views explained in this paper were identical with those of most men who had investigated the subject. There seemed to be absolutely no doubt as to the danger of bovine infection and it was most imperative that in a campaign against tuberculosis, measures should be taken to suppress this source of infection.

J. J. Thomas on behalf of the Milk Commission thanked the speaker for supporting their stand in regard to the milk supply. One third of the cows in the surrounding country were tuberculous. In looking for dairymen who would fulfil their requirements, only one was found and 20 of his cows were found to be tuberculous and had to be disposed of. At their last test of 90 cows on this farm only one was found to be infected. It was impossible to buy healthy cows locally owing to the great prevalence of tuberculosis. In order to add to the herd, cows had to be brought in from other States. It was most important to recognize this danger, and in advising parents, who were going to the country for the summer, as to the milk supply of their children, we should insist that the cows be subjected to a tuberculin test. He had recently done so in a case of one of his patients, and the cow furnishing milk, although apparently healthy, was found to be tuberculous.

H. B. Ormsby inquired as to the best instructions to be given patients in order to prevent the spread of the disease.

S. S. Berger asked whether bovine bacilli underwent any change when they infected human beings. Also as to the relative pathogenic power of the bovine as compared with the human type of the organism, if equal numbers of either type of organism were the infecting agent.

Prof. Ravenel in concluding said that in reply to H. J. Gerstenberger's question, he could not explain why miliary or general tuberculosis was

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not more common. Even when the bacteria were injected into the blood stream, the lungs stood the brunt of the attack. Of course miliary tuberculosis might be produced in this way. He had always believed that this was due to the filtration action of the lung. This seemed to him to be the reason why the infection was localized here when it occurred from ingestion. Tuberculous meningitis was more common in children than in adults, and was, he believed, due to intestinal infection. Calmette explained the action in this way: As soon as the tubercle bacilli penetrated the intestinal wall, they were taken up by the leukocytes. These leukocytes passed up the thoracic duct and entered the blood stream, soon reaching a capillary which was too small for their passage. If the leukocyte had taken up six or eight bacilli it was killed by the poison of the bacilli. When lodged in the capillary it then acted as a foreign body and was soon englobed by another type of phagocyte. This gave rise to the primitive tubercle beginning in the blood-vessel, as described by Auffrecht and Benda. On the other hand, if the leukocyte had taken up only one or two bacilli it retained its vitality, and, when arrested in the capillary, penetrated the wall by diapedesis, thus reaching the lymph stream, where it might be arrested for a longer or shorter time by some gland, but eventually might reach the periosteum or meninges. This appeared to him the most rational explanation of the process by which these distant parts were infected.

In reply to H. G. Sherman's question, he would say that his personal opinion concerning tuberculin was not drawn entirely from his own work, but represented the consensus of scientific belief the world over. Much of the criticism regarding the reliability of the test had come from its application by ignorant or careless people. There were certain conditions under which tuberculin would not give a reliable reaction. These were well recognized and known by every competent man. Tests done under these conditions gave misleading results, and were quoted by ignorant people as showing the unreliability of tuberculin, when in reality they showed only the ignorance and incompetence of the man who used the tuberculin. He did not think the explanation of H. J. Gerstenberger was a correct one in the case quoted by him. He would ask in the first place if any new animals were introduced into the herd after the first test was made, and second, if the premises were disinfected after removing the diseased animals. It was useless to get rid of tuberculous animals and put in new ones unless thorough disinfection was done. After the introduction of a new animal, it should be kept separate and retested after an interval of about three months, the reason being that even after infection had taken place the disease might not be sufficiently advanced to give the tuberculin reaction. It was similar to the Widal test in typhoid fever, which did not come on until at least the end of the first week of the disease. A certain time was required before the antibodies were formed. These facts, however, were not objections to the tuberculin test. He was extremely sorry to hear that the Ohio State Board of Health was not sound on this question. If what had been said was true, he believed the Board was criminally responsible to the people of the State of Ohio. No one could be found who would defend a man for selling milk containing typhoid, diphtheria or scarlet fever germs. Why then should a man be allowed to sell milk containing tubercle bacilli? The matter was so plain it seemed to him to be beyond argument. He believed a man had just as much right to sell milk containing strychnin or arsenic, or any other poison, as to sell milk containing tubercle bacilli. He had quoted the figures given by the German Commission and the English Commission regarding the finding of bovine tuberculosis in the human being. It had been proved that market milk frequently contained tubercle bacilli and infection took place oftentimes through the fact that cows swallowed most of their sputum, which then passed through their intestinal tract. A study of the market milk demonstrated that it contained much stable filth and in this way the tubercle bacilli entered the milk, as pointed out by Schroeder, Cotton and others. There was no doubt that the tubercle bacilli could also pass directly into the milk during secretion. There

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seemed to be no good reason to doubt that bovine tubercle bacilli might undergo a change in morphology in the human body. One of the cultures about which he had written a good deal was designated "M". It was obtained from a niece of one of the professors of the University of Pennsylvania. After it had been passed through a large number of animals, Dr Theo. Smith asked for a culture, and after examining it, reported that it was of the bovine type. A second culture of the same germ was sent to him fearing some mistake had been made in the labels, but again came his report that it was of the bovine type. This culture had never shown characteristics of the bovine bacillus. It was obtained from a human being in the first place and had been injected into several hundred animals. They had unusual opportunity for doing this, for Drs Pearson and Gilliland had used this culture as a vaccine in all of their immunization work. This was quite strong evidence that a bovine bacillus had undergone such changes in a human body as to make it resemble the human bacillus. It was also known that the mammalian type, whether obtained from man or cattle, might be changed into the avian. The rule was that all bacteria might be easily modified by cultivation or inoculation. He could see no reason why tubercle bacilli should be an exception to this general characteristic of bacteria.

He was not able to answer the last question regarding the relative numbers of lesions produced by bovine and human germs. We had no exact method of counting the number of organisms inoculated and he believed no one in the world was in a position to answer the question as asked. His impression was, however, that the bovine bacillus would produce a larger number of lesions than the human bacillus for a given number of germs introduced, since in human cultures we found many more degenerative or involution forms than we did in bovine cultures.

OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The thirty-ninth meeting was held Friday, February 26, 1909, J. N. Lenker in the chair.

H. G. Sherman gave a short talk on wounds in the ciliary region of the eye and showed two cases. The first was an injury which occurred January 17, 1909. A piece of steel about ¼ inch in length penetrated the eye through the ciliary region and was removed by the magnet. There was practically no reaction at the time, but about two weeks later the patient had an extensive hemorrhage in the eye. The anterior chamber had considerable blood in it, but there was no pain.

The second was a case of injury in the sclerocorneal region due to a piece of steel. The ciliary region was wounded and a portion of the iris was carried into the wound. The steel was removed by the magnet, the iris cut off and the eye dressed with iodoform and vaseline paste and bandaged. The eye at this time was quiet and vision very good.

A third case was also shown: A patient from whom an eye had been removed and the Mules operation performed, seven years ago, with excellent result.

W. B. Laffer presented a boy 11 years old. Three years ago he had throat trouble which was diagnosed as quinsy but which was very transient. At that time the lips and eyelids became swollen and had remained so. The patient had been unusually healthy and had not had even the ordinary diseases of childhood. The case was one of pseudoptosis first described by Fuchs under the name of blepharochalasis. The condition was due to a loss of elasticity and relaxation of the skin. This case was unusual in having the upper lip as well as the eyelids involved. (Reported in full in the March JOURNAL.)

J. E. Cogan showed a new kind of tonsil forceps. He also presented a man, 27 years old, who had a perichondritis of the larynx following typhoid. Tracheotomy was performed on July 10, 1908, and while the patient was still wearing the tube, he was able to get along without it for a short time. Attention was called to the fact that the hole in the

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tracheotomy tube was placed too high up, and that the tubes of various makers, and having the same number, varied considerably in their caliber.

M. Metzenbaum demonstrated an incandescent light for use in nose and throat work.

The papers were as follows:

1. The Extent and Variety of Refraction Cases, L. K. Baker, (to appear in full in the JOURNAL.)

2. Migraine, W. E. Shackleton.

The following cases were reported. In the first there was no relief from correcting refraction. In the other two there was no doubt that the attacks had been modified both in frequency and severity.

The first case, a boy, aged nine, was first seen in September, 1905. He gave a history of severe attacks of sick headache since he was six years old. These were of two or three days duration and from two to five weeks apart. The pain was severe, he vomited all food taken during the attack, perspired freely, and his mother said that he seemed completely prostrated. During the last one or two attacks his parents observed that his left pupil was dilated, that the upper lid drooped and that the eyeball turned outward but that these symptoms disappeared within a few hours after cessation of pain. During an attack, which had terminated the day before he was examined, these symptoms had been more marked and he complained of diplopia for the first time. The left pupil was slightly larger than the right but reacted promptly to light and in accommodation. There was also diplopia to the right of the median line. He was kept under observation for three days, during which time the paresis had greatly improved and his refraction was then measured under atropin. He had a hyperopia of +1.75, for which a correction of +1.25 was prescribed, and he was sent home with instructions that he be brought back in two weeks. Seventeen days later the extra-ocular muscles were balanced but in a subdued light the left pupil remained slightly larger than the right. He returned six weeks after the first visit and two days after another attack, during which all the symptoms of oculomotor paralysis returned. Counsel was refused. He was not seen again until June, 1907, when his mother brought him in again and said that the attacks were more frequent than ever and that the paralysis was constant. There were no intra-ocular changes and vision with correction remained 6/6. The color and form fields were normal in size.

The second case, a married woman, aged 33, for the past 16 years had had frequent attacks of headache which were preceded by a hemianopsia lasting probably 15 minutes. For the latter few minutes of this time there was also numbness of the left forearm and hand. The interval between attacks varied from 10 days to a few months and once she escaped for about a year. For years she had done very little near work for fear of precipitating an attack. She thought that the attacks were frequently associated with menstruation. She had been married seven years, had two children, and during both pregnancies had several severe attacks. The eyegrounds were normal. She expected no result from wearing glasses and none was promised. Her eyes were measured under homatropin and a hyperopia of +1.25 +.25 ax. 90. was corrected. Within the past month she reported that she had not had one of her severe attacks accompanied by visual disturbance and numbness in the left arm but that she had had several headaches which she described as neuralgia and which came on while sitting, or more particularly riding, in a strong wind.

The third case, Miss R., aged 38, a dressmaker, was first seen in 1901. Since childhood she had been suffering from attacks of severe headache. They varied in frequency from one in two weeks to two in one week. The onset was characterized by a sense of lassitude in the morning followed gradually by pain, blurred vision, photophobia, nausea and vomiting, followed by several hours sleep when she would awaken free from pain. The duration of the attacks was from six or eight to

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12 or 15 hours. When about nine years old her right eyelid began to droop during the attacks and within a year or two this became permanent, the lid having dropped so low that about half the pupil was cut off. In 1901 her refraction under atropin was O. D. + .75 + 1, ax 135 O. S. + 4.25 + .75 ax 105. In 1907 it was O. D. + 1.25 + 1.50 ax 130 O. S. + 4.50 + .50 ax 95. which gave her vision O. D. 6/9 + O. S. 6/6. During the past eight years, or since she had been wearing an accurate correction of her error of refraction she had been greatly relieved, often escaping for several weeks without one attack.

CLINICAL AND PATHOLOGICAL SECTION

The fifty-eighth meeting was held at the Cleveland Medical Library, Friday, March 5, 1909, W. B. Laffer in the chair.

W. G. Stern presented the X-ray pictures and gave a resumé of a case of tuberculous hip-joint disease which, while the absolute bacteriologic proof was unobtainable, nevertheless might be classed as a bovine infection. The patient, aged two, lived on a healthy hillside in Pennsylvania. There was no tuberculosis in the family except for an older brother who had had a tuberculous knee-joint. The entire herd of cattle belonging to the family, from which the children obtained their milk exclusively from earliest infancy onward, was tuberculous and had been lately exterminated. The trouble in the hip dated from earliest infancy. There were no crises, so common in the usual forms of tuberculous coxitis, and the parents consulted a physician only because the child could not walk at this age. The diagnosis made at this time was congenital dislocation of the hip. There existed in this patient a right-angled flexion and ankylosis with a slight subluxation of the right hip, caused by an almost complete destruction of the head and neck of the femur. There were no abscesses nor fistulæ. The lungs and external glandular system were negative. There was some dulness under the sternum and some indefinite resistance to palpation in the abdomen. The Calmette eye test was positive for tuberculosis, while the Detre differential test for bovine tuberculosis gave a marked bovine reaction.

D. S. Hanson in the discussion thought that most of the tubercle bacilli taken into the stomach with milk must be destroyed by the gastric juice which is abundantly secreted after taking food. If not, they would likely be destroyed by the leukocytes since there is a marked leukocytosis during digestion. The secretions from the respiratory tract, containing inhaled tubercle bacilli, would be much more likely to cause infection when swallowed since there might then be no active secretion of gastric juice to destroy them as there would be after taking food.

W. E. Lower presented a section of the lower ileum four feet long which had been removed at operation on account of an intussusception of a Meckel's diverticulum into the ileum. An ileocolic intussusception also occurred for a distance of one and one-half feet into the colon. Two distinct tumors were found and the gut became gangrenous. Resection of the involved gut and a lateral anastomosis were performed. The Meckel's diverticulum was three inches in length and showed a large number of fat tabs. The clinical history of the case was given and drawings, showing the nature of the operation, were exhibited.

C. E. Ford, secretary of the Academy, drew attention to the fact that of late three convictions had been secured against illegal practitioners of medicine in Cuyahoga county. Notices had been sent to the Academy members urging them to report to the Council any cases they knew about, but none had been reported. If the Council were notified of such cases prompt attention would be paid to the complaints.

The program was as follows:

1. Clinical Observations upon the Administration of Nitrous Oxid

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and Oxygen for General Surgical Anesthesia, by C. B. Parker. (To appear in full in the JOURNAL.)

2. Ether and Chloroform Anesthesia, by H. A. Becker. (To appear in full in the JOURNAL.)

C. L. Graber said if he required an anesthetic he would choose nitrous oxid and oxygen. The only annoying or alarming experience he had had with this combination was with one patient who had undergone a slight operation. She did not come out quickly, but vomited persistently for three or four hours..

M. Metzenbaum said that while at first nitrous oxid and oxygen was considered suitable only for short operations or as a preliminary to ether, it was now regarded as quite satisfactory for major operations if it was given by one trained in its use. The favorable reports in C. B. Parker's paper were undoubtedly due to the fact that the anesthetist was an expert in giving this combination. Ether and chloroform would probably remain the anesthetic of choice by the general practitioner. The custom of having the practitioner give the anesthetic for a major operation was a dangerous one unless the physician was trained in giving anesthetics. Chloroform was dangerous while ether was practically perfectly safe if properly given, gradually, well diluted with air, and preferably by the drop or open method. The anesthetic should be warmed. The operator should realize the difficulties of the anesthetist and not heap all the blame upon him if the condition of the patient were not quite satisfactory.

J. M. Frazer said that he was the physician referred to in C. B. Parker's paper and that he could vouch for the lack of unpleasant effects after nitrous oxid and oxygen and referred to his own very rapid return to consciousness with the complete possession of all his faculties. In general practise anesthetics had to be given under difficulties and without the preparations desirable. He recounted an emergency case of podalic version for an arm presentation, under anesthesia, in a woman who insisted on being on her feet and who had to be forcibly anesthetized.

R. H. Birge thought that the mortality statistics from the use of nitrous oxid could not as yet be compared with those from chloroform or ether since only recently has gas been used for major operations or those of long duration. These were the dangerous cases and ether was usually employed. He thought that in hospitals an expert anesthetist should be employed. He had never seen complete muscular relaxation from nitrous oxid and in some instances ether had to be given to complete the operation. Those cases which did well under the nitrous oxid he felt would have done well with ether. He would like to be convinced as to the value of nitrous oxid but he could see no reason for using it with a weak heart since the blood-pressure was raised by it to a greater or less extent and in such cases it would be especially dangerous. When it came into more general use and was no longer in the hands of experts he thought it would be even more dangerous than ether. The temptation was to give more than was wise so as to secure relaxation. When accidents did occur with it they came quickly and there was very little hope of resuscitation. One death from nitrous oxid had been referred to by C. B. Parker. Personally he knew of two others in which death could be ascribed to this anesthetic.

C. K. Teter said he had given nitrous oxid 13,000 times in the last 11 years. The great majority of these cases were minor operations lasting but a short time, but he had found that the worst time was in the first three or four minutes. After that time there was usually little difficulty. He had one death on the operating table due to asphyxiation, the cyanosis beginning in the fingers and creeping up the arms. The patient had been much exhausted and had a very poor pulse from the start. Pure oxygen was given as soon as the cyanosis began and it, as well as all other methods of resuscitation, proved useless. Death from nitrous oxid could come very quickly if the anes-

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thetist were unskilled. He would especially advise against the preliminary use of morphin and atropin since these increased the danger of asphyxiation. In the hands of an expert they were valuable aids in securing relaxation and safer than giving an excess of nitrous oxid, but an inexperienced anesthetist had better use 5 or 6% ether instead.

W. G. Stern referred to the fallacy that chloroform was perfectly safe for infants and children. He had always found ether given by the drop method perfectly satisfactory in such cases.

H. V. Riewel had taken ether on one occasion and the effect did not pass off for three days. On a second occasion he took chloroform and selected an expert anesthetist. The trouble with chloroform was that it was often improperly given as in a case he described in which chloroform, given by a novice, led to such unsatisfactory results that the operation had to be stopped. Next day an expert anesthetist gave the same patient chloroform with no trouble at all.

C. B. Parker in conclusion said that the choice of an anesthetist was most important. The operator would then have confidence in him and leave him alone. While nitrous oxid did affect the heart he believed chloroform or ether would be even more dangerous in case of cardiac weakness. He did not fear giving it in such cases if the anesthetist was skilled. He believed that in time nitrous oxid would be universally used as an anesthetic. He had had one patient die under chloroform, a man in very bad condition, who insisted upon an operation. He liked to use oxygen with chloroform since it increased the safety of all anesthetics. Warming anesthetics also added to their safety. The deaths after nitrous oxid were not sudden, but the signs of impending asphyxiation served as a warning. Experimentally it had been found almost impossible to kill animals with nitrous oxid mixed with oxygen. If air were used instead of oxygen the large amount of useless nitrogen prevented a sufficiently deep anesthesia to secure relaxation. The preliminary use of morphin and atropin was a great aid in diminishing muscular rigidity. If he used chloroform or ether he would administer oxygen also and would warm the anesthetic.

Book Reviews

Parcimony in Nutrition, by Sir James Crichton-Browne, M. D., LL. D., F. R. S. 12mo, cloth. 75 cents, net. Funk & Wagnalls Company, New York.

Since the appearance four years ago of Chittenden's book, there has been no little interest aroused in the question as to whether or not our daily diet contains too large a proportion of proteid. The undoubtedly scientific and apparently incontestible evidence advanced by so able a biochemist as Chittenden, in support of the view that we are thus gorging ourselves with proteid, has led many to accept his conclusions on this question as final, and has induced some to materially diminish this constituent of their food.

It is a question not only of economical value, but also of prime hygienic importance, and it is well that the other side of the question should be authoritatively and ably presented to us. This is done, and done right well, in Sir James Crichton-Browne's little book. After briefly and simply explaining the question at issue, and describing how Chittenden came to take up this problem as a result of the apparent justification of Mr. Horace Fletcher's claims for the efficacy of prolonged mastication, Sir James goes on to show that although, for comparatively short periods of time, such parcimony may not prove detrimental to bodily health and vigor, and that it may, within such limits, prove

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physiologically adequate, yet that, for longer periods, experience shows that such proteid-poor diets must surely be unsafe.

It is shown that against Chittenden's conclusions there stands a mass of evidence pointing in quite another direction and of which perhaps the most outstanding is that of habit. In all our habits expediency dominates the choice, and in the habit of taking food all people, who possibly can, choose a diet which is relatively rich in proteids. To quote: "If he (Chittenden) is right, then all the world up to this time, with the exception, perhaps, of a few supposed faddists, has been wrong. Gluttony has somehow become universal. It's Chittenden *contra mundum.*"

The well known demoralizing effect of hunger on the one hand, and on the other the undoubtedly beneficial effect of forced, or at least abundant, feeding in the treatment of certain diseases are called in evidence against Chittenden's arguments. So are the experiences of prison administrators, of health-boards, and of army hygienists, to say nothing of the metabolism researches of such renowned investigators as Atwater, Voit, Munk, Rosenheim, Zuntz, etc.

Written in beautiful English and with the subject matter arranged in the most logical and most forceful manner the book can be unqualifiedly recommended both to medical men and laymen. Everyone should most certainly read it.

Practical Dietetics: With Reference to Diet in Disease, by Alida Frances Pattee; Graduate, Boston Normal School of Household Art. Late Instructor in Dietetics, Bellevue Training School for Nurses, Bellevue Hospital, New York City. Special Lecturer at Bellevue, Mount Sinai, Hahnemann, and the Flower Hospital Training Schools for Nurses, New York City; St. Vincent de Paul Hospital, Brockville, Canada. Fifth edition. 12 mo. cloth. 300 pages. Price, $1.00 net. By mail, $1.10; C. O. D., $1.25. A. F. Pattee, Publisher, Main Office, 134 W. First Ave., Mt. Vernon, N. Y.

The introductory chapters are briefly and simply written so as to be intelligible to the laity and deal with the different classes of foods, their physiologic importance and general rules for feeding the sick. The greater part of the book consists of receipts for various articles of diet suitable for the sick.

Dietaries suitable for various diseased conditions, such as the acute infectious fevers, diabetes, rheumatism, etc., are then detailed. These, as the references indicate, follow the instructions of various authorities. Diet in infancy and childhood and an appendix conclude this useful little volume.

New and Nonofficial Remedies. Articles which have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association prior to January, 1909. Chicago: Press of the American Medical Association, 103 Dearborn Avenue. Paper, 25 cents; cloth, 50 cents.

The preparations described in this little book are either proprietary articles or new non-proprietary remedies, both of which have been examined and approved by the Council on Pharmacy and Chemistry. The notes governing the admission of such products are first detailed and then follows the descriptions of the remedies themselves, including their ingredients, methods of preparation, etc. The arrangement is in groups according to the properties of the different drugs. The value of such a work is beyond question as it brings to the physician's notice many of the newer remedies and gives reliable information as to their composition. Supplements will be issued quarterly as new products are investigated by the Council.

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Correspondence

We have been requested to publish the following letter which Dr Charles A. L. Reed has addressed to his chief political supporters in and out of the medical profession of Ohio:

"I take advantage of the occasion offered by the adjournment of the Sixtieth Congress and the conclusion of President Roosevelt's term of office, to address you on a subject somewhat personal to myself.

"At the instance of my profession, I have devoted a large part of my time for nearly 20 years to its activities in the interest of the people. I have tried to respond to every demand that has thus been made upon me, however great the sacrifice involved on my part. What I have done I have done cheerfully and I confess that I look with satisfaction on the results that have been achieved in organization and in the extension of our influence at home and abroad, largely as a result of labors with which, in connection with others, it has been my privilege to be identified.

"I feel, however, that I have now earned my right to exemption from further service in this capacity and that I can with propriety ask to be permitted to follow my desire and purpose to devote my time, hereafter, exclusively to my surgical practice.

"Again thanking you for your loyal support and cooperation in the recent Senatorial campaign and forespeaking your continued interest, as I pledge my own in a personal way, in everything that will promote the welfare of the people, I am

Very sincerely,
(Signed) CHARLES A. L. REED."

Medical News

The Charity Hospital Medical Society met Wednesday, March 10, 1909. The program was as follows: Fibroid of Broad Ligament, C. L. Booth; Sarcoma of Kidney, A. G. Schlink; Five Cases of Perforating Gastric Ulcer, R. A. Jewitt; Infant Feeding, R. A. Thompson.

Heroes of Modern Medicine was the subject of an interesting sermon by Rev. R. W. Anthony of the Glenville Presbyterian Church, February 28, 1909.

A complimentary musicale and reception was given by the Cleveland Medical Library Association on Wednesday evening, March 10, 1909. Rita Elandi, Mrs. Nicola Cerri, and Messrs. R. Garfield Chapman and Claude H. Selby presented a most enjoyable program. Refreshments were provided after the concert.

The Stark County Medical Society met Tuesday, March 16, 1909, at the City Hall, Canton, Ohio. The program was as follows: The Anatomy and Physiology of the Cardiovascular System, J. B. Dougherty, New Berlin, Ohio; Valvular Diseases of the Heart, Geo. H. Campbell, Navarre, Ohio; Myocardial Diseases and Associated Vascular Changes, Perry F. King, Alliance, Ohio; Rheumatic Endocarditis in Children, Charles H. Ross, Alliance, Ohio.

Senn Club. At the meeting of the Senn Club held March 28, 1909, it was decided to perpetuate the memory of Nicholas Senn and to bring before the public, lay and professional, the valuable services rendered by him. The means to be employed for this purpose will be decided on later. Alex Hugh Ferguson was unanimously elected president of the club, and Arthur MacNeal was re-elected secretary.

The Lakeside Hospital Medical Society met Wednesday evening, March 31, 1909. The program was as follows: Presentation of Case of Thrombo-angiitis Obliterans, J. MacLachlan; Presentation of Case of Hemophilia with Organic Changes in Joints, C. F. Hoover; Report and

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Exhibition of Specimen Simulating Dermoid Cyst found in Vagina, C. D. Williams; The Principles of Treatment of Acute Hemorrhage, H. G. Sloan; Report of Case of Influenzal Peritonitis, also one of Influenzal Appendix, L. Ladd.

The alumni of the Jefferson Medical College wish to show their appreciation of the services of Dean Jas. W. Holland by presenting his portrait to the college. Alumni and colleagues and friends of Professor Holland are therefore requested to send contributions, not exceeding $5.00, to H. Augustus Wilson, Treasurer, 1611 Spruce St., Philadelphia, Pa.

The American Proctologic Society will hold its eleventh annual meeting at Haddon Hall, Atlantic City, N. J., June 7 and 8, 1909. An attractive program, comprising some 26 papers, will be presented.

A useful brochure in four parts, entitled "Differential Diagnosis," (Epitomized), is being sent to physicians by the Arlington Chemical Company of Yonkers, N. Y. The first part contains a quantity of valuable information and is illustrated by some very handsome colored plates.

J. J. Boone of Mt. Victory, according to a dispatch in the Plain Dealer, has refused to file certificates of births and deaths with the local registrar upon the ground that the State could not compel a physician to do this unless he is paid for it. The State officials will probably make a test case of this and Dr. Boone says he will carry it to the Supreme Court if necessary.

The case of Norman Geer will be brought up by County Prosecutor Cline at the approaching session of the Criminal Court. Mr. Cline hopes to be able to secure a conviction and all reputable physicians will appreciate his efforts toward this end.

The United States Civil Service Commission announces an examination on April 14, 1909, to secure eligibles from which to make certification to fill a vacancy in the position of scientific dietist, $900 per annum, for duty in the Philippines, and vacancies requiring similar qualifications as they may occur there. Both men and women will be admitted to this examination. Age limits, 20 to 40 years on the date of the examination. Applicants should at once apply to the United States Civil Service Commission, Washington, D. C., for application Forms 2 and 375.

The St. Alexis Hospital Alumni Association met at the Hollenden, March 4, 1909. The following program was presented: Pathology of the Thorax, F. P. Corrigan; Infant Feeding, J. S. Thompson.

J. S. Windisch has been appointed Physician-in-Charge of the Fairmount Home in the place of Frank C. Hoskins, recently deceased.

Deaths

The death of Frank C. Hoskins, on February 19, 1909, removes from our ranks one of the most promising younger physicians of Cleveland. Born in Genoa, N. Y., 30 years ago, he graduated at the W. R. U. Medical College in 1904. He then served for 18 months as House Officer in Lakeside Hospital and entered practise in 1906. He became Physician-in-Charge of the Fairmount Home in 1907 and later was attached to the staffs of the Tuberculosis Dispensary and of the Throat, Nose and Ear Department of Lakeside Hospital Dispensary. He was a member of the Academy of Medicine of Cleveland, the Ohio State Medical Society and the American Medical Association. On February 12, following exposure to cold, he was taken suddenly ill and rapidly succumbed from influenzal peritonitis. He was married 18 months ago to Miss Jean Barnes, of this city. To her and the other members of his family our heartfelt sympathy is extended.

William Faber, Rittman, Ohio, died February 4.

John H. Tressel, Alliance, Ohio, died February 17.

Arthur Noble, Winchester, Ohio, died February 11.

Merritt Moses Ayers, Ohio City, Ohio, died February 16.

Thaddeus Asbury Reamy, Cincinnati, Ohio, died March 11.

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The Cleveland Medical Journal

VOL VIII MAY, 1909 No 5

Opsonins and Other Antibodies *

By LUDVIG HEKTOEN, M. D., Chicago.

According as stress was placed on the part of phagocytosis, on the one hand, and on the role of antibodies, antimicrobic as well as antitoxic, on the other hand, investigators until but recently were largely partisans of either the phagocytic or the humoral theory of healing and immunity. But the sharp antagonism between the adherents of these theories has subsided, because it has been made clear that neither mode of action is accomplished without the co-operation of cells and fluids. This is particularly true and easy of demonstration in the case of phagocytosis. Metchnikoff, the genial founder of the phagocytic theory, by broad comparative studies established the general occurrence and the significance in health and disease of phagocytosis in the higher as well as in the lower animals, and Denys and others have shown that the fluids of the blood play an essential part in the phagocytic process by so acting on microbes and other elements that they are made susceptible of phagocytic action. This property of the blood-fluid is now ascribed to definite substances, the opsonins of Wright and Douglas, and the tropins of Neufeld, both in all probability the same substances, and destined, I believe, to bear the name of opsonins, at least in the English language. While our acquaintance with the opsonins dates back only four or five years, they have been the subject of many researches, and much has been written about them, and it is to some more or less final results and certain general bearings of this work, fruit of the phagocytic theory as modified and perfected by the opsonic theory, that I wish to direct your attention.

*This article is a slight abbreviation and modification of an article with the same title in Science, 1909, N. S., XXIX, p. 241. It formed the basis of the remarks accompanying the demonstration before the Experimental Section of The Academy of Medicine of Cleveland, March 12, 1909. The results presented, unless otherwise indicated, are to a large extent the outcome of investigations carried on by my associates and myself in The Memorial Institute for Infectious Diseases of Chicago.

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It is generally accepted that phagocytosis of many bacteria —and also of red blood corpuscles, which are highly serviceable objects for the study of certain problems—is dependent upon substances—opsonins—which become attached to the bacterial cells or corpuscles, as the case may be, and so alter them that they are readily taken up by the leukocytes. The chief reasons for this conclusion are that leukocytes, carefully freed by repeated washing in salt solution, from the fluids in which they naturally exist, have but very little or no phagocytic power with respect to certain bacteria or corpuscles suspended in salt solution, while the same bacteria or corpuscles, after having been treated with suitable opsonic serum and then freed from the serum, are taken up by serum-free leukocytes. A few bacteria, however, *e. g.*, influenza bacilli, are readily phagocytable without the presence of opsonic serum.

Bacteria or corpuscles are not necessarily altered in opsonic serum and many bacteria, notably streptococci, pneumococci, anthrax bacilli, as well as others, grow freely in such serum. Heretofore the belief that phagocytes may cause destruction of bacteria rested largely upon more or less convincing morphological appearances. By means of the plate method for demonstrating bactericidal action it now has been shown conclusively that certain bacteria that do not suffer demonstrable injury by blood serum alone, such as those just mentioned, undergo intraphagocytic destruction when put into mixtures containing living leukocytes and opsonically active serum. In serum alone and in suspensions of serum-free leukocytes active growth occurs, but when the two are mixed destruction takes place, other factors being equal, in proportion to the number of leukocytes present. The actual demonstration of phagocytic annihilation of bacteria, formerly so often demanded by the opponents of the phagocytic theory, is here furnished.

The indications are that various opsonins with more or less well-marked specific affinities occur in all animals down to and including the echinoderms, being, like other antibodies, present to a variable extent in normal blood and other fluids.

In the course of his studies on lymph formation Professor Carlson[1] finds that opsonins and related bodies are more concentrated in the serum than in the lymph, that their concentration varies in the lymph from different organs, and that their apparent

(1) Personal Communication.

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relative concentration in different lymphs also varies. The fact that the relative concentration is not the same in all lymphs speaks of course strongly in favor of the antibodies being distinct substances, a point concerning which there is still difference of opinion, some believing that it concerns different modes of action of the same body, others that each action is dependent upon a distinct body.

At first opsonins were regarded as substances of a relatively simple structure, quite easily destroyed by heat (60° C. for 15 to 30 minutes) and other agents. But it has been found that in most cases the total opsonic effect of fresh serum is the result of the combined action of two bodies, one relatively resistant to heat, the other easily destroyed by heat. The heat-resistant element is capable of opsonic action by itself and seems to unite quite firmly with the object upon which it acts; the opsonic effect as measured by the resulting phagocytosis is, however, greatly promoted on the addition of the other, thermolabile element, which alone has no opsonic power. In other words, opsonins, as a rule, seem to have the same duplex constitution as the lysins with which they are held by some to be identical.

The heat-resistant opsonic element appears to attach itself firmly to the bacterium or corpuscles upon which it acts because, in some instances at least, it is not detached even after many washings of the opsonified bacteria or corpuscle in large quantities of salt solution. Consequently opsonification is to be regarded as the special action of a distinct unit and not as the result of the influence of plasma or serum as a whole. The thermolabile, activating element, however, according to the results of recent experiments, probably remains free in the fluid of the phagocytic mixture, and there seems to me to be good room still for question as to whether its effect is exercised upon the phagocytable object or upon the phagocyte. Years ago Metchnikoff expressed the view that serum may stimulate leukocytes and other cells directly to phagocytosis, while, on the other hand, bacteria or red blood corpuscles that take up what he and his followers then called "fixateur" thereby are made phagocytable. It is not impossible that further analysis of the mechanism of phagocytosis, under the guidance of the opsonic theory, will lead to this as the final result. At all events the failure to recognize the interaction of the two elements in the opsonic function of serum and the great dif-

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ference in their combining properties is responsible for many of the divergent results of various investigators.

While normal blood contains only comparatively small amounts of heat-resistant opsonic substances, each unquestionably possessed of more or less well-marked specific affinities, the blood in conditions of acquired immunity may be richly charged with newly formed thermostable opsonic substances with marked specific affinity for the object against which the immunity is directed. Injections of suitable animals with bacteria or with alien red corpuscles cause specific opsonins to form; in human beings new opsonins arise as the result either of spontaneous infections or of the artificial introduction of killed bacteria and various bacterial products.

The opsonin content of the blood may be measured more or less accurately, either by means of the opsonic index or by determination of the highest dilution of the serum at which opsonic effect is still obtainable and comparing it with some normal standard. Speaking only in general terms, the opsonic index of Wright with respect to a given bacterium is obtained by comparing the number of bacteria taken up under the influence of the serum of the person or animal in question with the number taken up under the influence of the corresponding standard of normal serum under conditions that are as comparable as they possibly can be made.

By following the fluctuations of the opsonin content at frequent intervals important facts have been learned in regard to the laws of opsonin production. In the language of immunology any substance capable of giving rise to antibodies in suitable animals is called an antigen. Microbes and various microbic derivatives, cells, red corpuscles and serum may contain several antigens and incite the formation of more than one kind of antibody so far as indicated by the usual modes of antibody effect. Thus the proper single injection in a suitable animal of typhoid bacilli or of alien red cells is followed usually by the appearance in the blood of increased amounts of lysins (lytic amboceptors), agglutinins and opsonins for the particular cells injected. Usually all three of the bodies mentioned are not increased in the same proportions so far as determinable by our present methods of measurement, but they all commonly follow the same general course, which seems to hold good for antibodies in general: For the first day or two or three there is often, but apparently not

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always, a fall below normal in the amount of the specific antibodies in the serum; this period is called the negative phase and is succeeded by a steady rise above the normal, which, as a general rule, reaches its maximum about the eighth to twelfth day when there is a fall, the apex of the curve being sometimes quite sharp, at other times more rounded, and then begins a gradual return to the normal.

It is important to note that the fall below normal, the negative phase, is specific, that is, affects only the normal opsonin, and by inference the other antibodies, for the particular bacterium or corpuscles injected, a clear indication; it strikes me, that there are several normal antibodies, each with specific affinities and probably not different from the corresponding body formed when the machinery of immunization is set in motion. The cause of this interesting negative phase is not well understood, but it lies closely at hand to ascribe it to neutralization of the normal antibodies by the antigen, or to its effect on the antibody-forming cells. There is good reason to believe, especially on clinical grounds, that the general resistance to the specific infection is lowered in the negative phase, although certain experimental results indicate that the opposite may be the case.

Blood serum may contain antigens causing the production of antibodies for its homologous corpuscles; thus, the injection of antidiphtheric horse serum is followed by a wave-like rise and fall of the lysin, agglutinin and opsonin for horse corpuscles in the blood of the patient, the highest point being reached usually about the tenth day. Undoubtedly these antigenic substances are derived from disintegration of the corpuscles.

Serum and other protein mixtures also induce the formation of specific precipitating substances in suitable animals. Whether the specific precipitin test for protein material, now extensively used for the identification of blood and in the solution of allied problems, will prove of service also in the study of pure proteins, remains to be seen.

In several acute infectious diseases the course of the formation of new opsonin for the infecting agent, in the typical attack, terminating promptly in recovery without complications, shows a marked general resemblance to the opsonin or antibody curve after a single antigen injection in the normal animal. It also bears definite and constant relations to the clinical phenomena. During the early stages when the symptoms are pronounced there

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is a negative phase, and then as the symptoms begin to subside the opsonin curve rises above normal, reaching the highest point several days after the onset, followed by a gradual subsidence. This is true of the pneumococcus opsonin in pneumonia, of the opsonin for the diphtheria bacillus in diphtheria, of the streptococcus opsonin in erysipelas, and also of the opsonin for the diplococcus of mumps in that disease. The curve is typical as well for the streptococcus in scarlet fever, indicating clearly that this organism unquestionably plays a definite role in scarlet fever whatever its actual causative relation to the disease may be. In pneumonia the greatest rise in the leukocytosis appears to precede somewhat the highest rise of the opsonin. In all these diseases the typical wave-like opsonin curve is modified by the development of complications of various kinds and at the onset of which it commonly undergoes a distinct depression. In rapidly fatal cases, for instance of pneumonia, the opsonic curve or index may not return from the primary depression but sink lower and lower. In prolonged infections, general as well as local, there occur irregular fluctuations and in chronic, more or less stationary cases, the opsonic index is often subnormal. At this time further details can not be given. My chief point is to make clear the close association between recovery and the wave-like rise of the opsonin and, as a result of the immunization, in all likelihood also of other antibodies in the typical attack of acute so-called self-limited infections. In some of the diseases the opsonin is the only antibody that we can measure readily with our present means. As I have stated, intraphagocytic destruction of pneumococci and streptococci takes place in the presence of fresh leukocytes and opsonic serum, whereas either alone constitutes a good medium for these bacteria. Taking these facts into account, it seems to me that the wave-like course of the opsonin in pneumonia and in acute streptococcus infections is a strong point on the side of the importance of phagocytosis in their healing, whatever other measures, of which at present we know less or nothing, may be in operation also.

Whether the opsonic action of serum is caused by distinct and independent substances or by antibodies with other actions as well, has been an interesting question concerning which there is still difference of opinion. The question now seems to be narrowed down to whether the opsonins and lysins are the same, some claiming that opsonification merely is the result of an early stage

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of lysis before actual solution takes place. Opsonins would appear to be distinct from other antibodies because a given serum may be opsonic, but not lytic, while the reverse probably also occurs. But here certain difficulties arise. While it is well established that serum may be strongly opsonic without being lytic and without even containing lytic amboceptor so far as our present methods indicate, the suggestion is made that in such cases the failure to obtain lysis may be owing to the state of the object tested and not to the absence of lysins. This consideration applies with most effect to instances in which we know the bacterium or corpuscle is susceptible both to lysis and to opsonification, and in which lysis might not take place either because the serum was not active enough or because of some special resistance to lysis. The explanation falls short, however, when applied to bacteria like pneumococci and streptococci, which, while readily opsonified, are yet insusceptible to lysis. In this case the claim that lysis does not take place because of the physical state of the bacteria is merely an assumption.

If opsonification and lysis depend upon the same body the opsonic and lytic powers of the serum of an animal in the course of immunization should always run parallel. If they do so that fact does not of itself prove that it concerns one body, but failure to run parallel would indicate the existence of separate bodies with different functions. Actual observations show that in certain animals single injections of alien red corpuscles may increase the opsonic power of the serum for that corpuscle a hundred times or more above normal, while the lytic power for the same corpuscle may be increased comparatively much less and in some conditions not at all. On this account, then, as well as for other reasons, the view that opsonins, meaning thereby the thermostable opsonic substances, constitute a distinct class of antibodies, seems to me to be correct.

That the activating or complementing opsonic substance is closely related to the complement of lysis is indicated by a number of considerations: Both are sensitive to the action of heat, being destroyed by an exposure of thirty minutes to 58-60° C.; both appear to be split up into two distinct components by water, and both are neutralized by a number of ionizable salts. As stated before, the opsonic complement, however, seems to remain free in the phagocytic mixtures, whereas the complement of lysis is regarded generally as bound by the amboceptor.

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We come now to a most interesting part of our subject, namely, the resistance offered by microbes under different conditions to antibodies and more particularly to opsonins.

Since the discovery of the chronic microbe carrier the adaptation of microbes to the defensive mechanisms of the animal body is no longer merely of academic interest. Under the conception that phagocytosis and bacteriolysis form the basis of healing and immunity in perhaps most of the infectious diseases, the infecting microbes should disappear at the time of recovery. This is probably the general rule, but there are many striking exceptions illustrated well by the now familiar *"bacillus carrier."* The body may overcome the disease but not the cause, which may persist in spite of the increase in antibodies. The disease subsides, the disturbances are smoothed away, and yet the germ lives on in the host, apparently harmless and unharmed, sometimes for remarkably long periods. But the equilibrium is not always a stable one; the immunity of the host may give way and recurrence develop; or the resistance of the germ may weaken and eventually complete destruction and final elimination take place.

Germs isolated from typhoid and cholera carriers have been found in some cases to offer special resistance to antibodies, including opsonins, but the mechanisms of this mutual immunization of microbe and host are still obscure, and on account of the self-evident and tremendous importance of the carrier in spreading disease they invite special study.

At this point I may recall that the relapses in relapsing and related fevers are now ascribed to the survival in each attack of a few spirilla which, having become immune to the antibodies of the host, give origin to new "serum-fast" strains that continue the relapses.

Exceedingly interesting conditions are found in certain chronic infections of the urinary tract with bacilli of the colon group, the indications being that the infecting bacillus may partially immunize itself, in one case to the lysin, in another to the opsonin, in the patient's blood, or that the amounts of different antibodies vary greatly in the different cases.

In Metchnikoff's original doctrine of phagocytosis in infectious diseases a fundamental tenet reads that as a microbe grows in virulence its resistance to phagocytosis increases. Recent experiments give results in complete harmony with this teaching. On analysis the resistance of certain highly virulent bacteria to

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phagocytosis is found to depend on insusceptibility to opsonic action, owing apparently to lack of affinity for the opsonin. As pneumococci, streptococci and other bacteria on successive passages through suitable animals become more and more virulent for these animals, they at the same time acquire a parallel increase in resistance to phagocytosis. When cultivated outside the body reversion readily takes place to less virulent states, associated with a returning affinity for opsonin and an increasing susceptibility to opsonic action. Investigating this property of pneumococci to develop such strong defense against phagocytosis, Rosenow found that extraction or autolysis of virulent pneumococci brings into solution a substance or group of substances that neutralize the pneumococco-opsonin in human serum, but not other opsonins. After extraction of this substance, which is thermostable and insoluble in alcohol or ether, virulent pneumococci unite with opsonin and become phagocytable, while avirulent pneumococci on treatment with extracts of virulent strains not only become resistant to phagocytosis in the test-tube, but also to some degree virulent for animals.

Entirely independently, Tchistovitch and Yourevitch appear to have reached identical results on all points, except that they did not study the virulence of avirulent pneumococci after treatment with extracts of virulent strains.

We may say then that the properties called *virulence* in pneumococci appear to depend, to a very large extent, if not wholly, on the formation of an actual substance—"virulin"[3]—which may be extracted and studied by itself. It is hoped that this demonstration may prove a basis of departure for new and fruitful work in pneumococcus and similar infections.

The animal body is provided with numerous and intricate mechanisms of self-healing, as illustrated so well by spontaneous healing and immunization in so many infectious diseases. At present the mechanisms of healing and immunization are being studied as never before with the ultimate object of learning how best to employ natural means in active therapy—a thoroughly rational method in use since some years with uniform success in certain diseases, notably diphtheria. In other infectious diseases, however, effective treatment by natural means artificially employed is still the object of search. In the spontaneous healing of many of these diseases phagocytosis plays a prominent part and for that reason I have ventured to fasten the attention on some of the newer phases of the phagocytic process.

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The Emmanuel and Allied Movements

By WM. C. BUNCE, M. D., Oberlin.

If I were a minister rather than a physician I would choose for my text this evening, Matthew the sixth chapter, twenty-fourth verse, "No man can serve two masters; for either he will hate the one, and love the other; or else he will hold to the one, and despise the other." I might go farther and select another from Matthew, seventh chapter, twenty-second verse, "Many will say to me on that day, Lord, Lord, have we not prophesied in thy name? and in thy name have cast out devils? and in thy name done wondrous works? and then I will profess unto them, I never knew you: depart from me, ye that work iniquity."

It is unfortunate that ministers of the Apostolic succession, whose church has been kept clean for the worship of God, and God only, throughout the ages until now and has not entered into any of those allurements of the present day, should have so far forgotten their sacred calling and the trust imposed upon them, as to enter upon work which is not in their line but rather that of the physician. The world has not yet been so purged of sin that their time may be given up to other pursuits.

Far be in from me to decry the work of my chosen church, or of those men of God who have done so much good in the world, but no man should be allowed to practise medicine, be it alone that of the nerves and mind, until he has studied and passed the examinations required by law of all physicians, for the body is the house and abiding place of the mind, without it there is no mind. All the magnetism or pronounced personality of the so-called healers could never cause the death of even one bacterium.

Every age has had its history of marvelous cures as the result of faith. Priests both Christian and pagan have invaded the walks of our chosen profession. Marvelous were the cures of the pagan Egyptian priests of the temple of Isis, or by the oracles of the idolaters in the temples of ancient Greece. And so it has been on down to the present day of Dowie, faith-cures, Christian Scientists, and the last of all, the Emmanuel Movement.

Read before the Lorain Co. Medical Society in discussion with Rev. Thos. S. McWilliams of Cleveland, O.

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Some have gone so far as to declare themselves not only the reincarnated prophets but even God himself, and one enterprising man in the South has declared that he is not alone God, but Mahomet and Confucius as well.

All rely upon man's belief in a deity and the strong personality of the healer. Yet in all these wonderful cures there is nothing more wonderful than the simple thing that we resorted to in childhood, when we rubbed the piece of meat on the wart and then hid it under the corner of the house. In our youthful eyes, the simple act, surrounded by mystery, changed our whole nutrition and the wart disappeared. In this there was no appeal to the orisons of the pagan, or the faith of the modern.

Charms, amulets, and fetiches have served the uncivilized man as a means to avert disease, calamity and death. It would appear that man, in all ages, is prone by nature to pass by known facts and established theories and, especially in disease, search for the mythical, unknown and new. This is not alone the case with those of weak or diseased nerves, but even the injured.

The savage employs some incantation; the pagan, some offering to his favorite God. What is more natural, as the whole race appears to be imbued with the same spirit, than for the Christian to hope for some divine intervention in his special behalf?

Christian Science is one of the most lamentable movements of the age. It obtunds the mind and steals away the brains, until the subject becomes a slave to the teachings of Mrs. Eddy and is no longer capable of comprehending the inconsistencies and absurdity of her works, and defenceless and innocent little ones suffer and die as a result. But in time it will pass as other religious fancies and fads have passed. The larger the crowd, the greater the fall, and it will only differ from the others in leaving a lot of addled brains behind it.

If you will study the Christian Scientists and observe them closely, I mean those who thoroughly believe and are imbued with its teachings, you will notice that many of them have a peculiar far away look, as if they were in a sort of a dream or partially hypnotized. They will not argue with you, but they smile—you have all seen that smile.

There is one poor woman whose husband has called me in a few times to relieve her pain, and whom a slight operation would permanently relieve. After I explained her condition to her, she

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said, "Doctor, I believe you and am determined to do as you say," but as soon as I am gone the crowd gathers around her with their smiles, and the microbe of Satan again enters her brain.

One who reads the works of Christian Science will recognize in them a similarity to those of Theosophy, not alone in the manner of their presentation, but one has a good many of the ear marks of the other. They are both a written form of hypnotism. Things are stated as facts and there is no chance for argument. A few known facts may be scattered along to lend the light of truth to the whole statement. Here faith plays a large part. They will tell you that God can do all things: he can heal you if you only have sufficient faith, which is perfectly true, but if he would do all things for us here below, there would be no earth, it would indeed be heaven and then there would be no need of either doctors or healers.

But we are of the earth, earthy, subject to the laws of this universe as laid down by the Creator. No one denies that the Lord could do our work for us and pay our taxes but it does not appear to be in accordance with his scheme for our welfare here to do thus. We are not ethereal beings, neither are we spirits, but human beings with bodies to suffer pain and disease, and the great Creator has kindly fortified our bodies to resist just such conditions.

The fight of the phagocytes and bacteria will go on in spite of all the false prophets that may arise.

A lecturer on Christian Science says that the light reaches human experience through that consciousness which offers the clearest transparency for its expression, and because Mrs. Eddy's consciousness was more free from the dross of matter than any other on earth, this light has been shown through her. To one who has read the life history of Mrs. Eddy as portrayed in one of our popular magazines, this would appear a rather singular statement, especially to the physician. We find that her earlier history was that of a hysterical and ungovernable girl, later she had two husbands, hers was an indolent and selfish nature that did not present the common instincts of motherhood in the interest and care of her offspring. Pause a moment and draw a comparison between her character and that of the woman shown in Bible history whose son was born in a manger.

Should we expect one who has shown such instability and vaporings of mentality, as is shown in the history of Mrs. Eddy's

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life, to be chosen as the divine agent of the Deity to present to the world a higher phase of religious mentality?

Disease, she says, is sin. When Cortez discovered Mexico there was no disease there, people died only as a result of accidents or from old age, and yet was there no sin there? Within a month there has been found by R. B. Howard, Chief Protector of the Aborigines in Queensland, a race of beings, not before known to man, that do not know what sickness is; they have neither sickness nor disease. The train-robbing bandit, camping alone in the mountain fastness of the Far West, is a perfect speciman of physical health; a cut or injury heals quickly without suppuration, and meat hung out in the air dries but does not putrefy. There are no bacteria there. Sin has nothing to do with it.

Disease is the tribute that humanity pays to progress and the aggregation of her people together, as well as to our modern manner of living.

Whatever may be the nature of mind we have to acknowledge its supremacy over matter. Mental influence may become a great factor for good or it may become the greatest curse that the world has ever known. Already it is gaining a first rank among the causes of family troubles, crime and murder. One of the most recent cases is that of a minister who, in his own church, murdered his friend, then burned the body in the stove and afterwards cut his own throat. The man may have been insane but he claimed that it was due to hypnotic influence. Who can tell that the primary cause was not as he claimed?

Who can define the ultimate limits of mental influence over a human being? Where does it begin and where does it end? What may not a passing influence, that controls the workings of the brain and body, do towards robbing the mind of its natural stamina and of its power of resistance and what ends may not be reached when once the power is established? Is the subconscious mind that we are hearing so much about really a subconscious mentality, that which is to work such wonders a purely mental influence of a higher but undeveloped order? What then is the influence that causes the bird to draw nearer and nearer to the cat or snake until it is destroyed? It would appear like an evil influence leading ultimately to destruction. The same influence has been used by man to subdue animals, and animals have been known to hypnotize even man himself. If this is

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purely a mental process then animals must have minds. It is a well known fact that hunters have been torn by wild beasts, which stood over them, and have afterwards stated that they felt no pain.

Darwin might claim that we were developing a force latent in our natures, which, like some of the rudimentary organs in our bodies, lies dormant but which in ages past may have been active and necessary for us to procure our food. At this age, however, its cultivation and use would indicate a step backward rather than forward in mentality. What is the subconscious mind but that power in man not usually employed in normal or natural consciousness; a power that can be made subservient to the wishes of others; a power not meant by God or nature to be developed and used by us? It is a destructive agent to the mind, both to him who uses the power and to the one upon whom it is used. Examples are not wanting to show the mental deterioration of the subjects of such mental influences, and the moral degeneration and often resulting insanity of those who practise such arts are also well known.

Has Satan in his subtle way sought to defeat the ends of Christianity through her chosen ministers by cultivating mental degeneracy in the name of God?

Psychotherapy and the Emmanuel Movement, the latest of healing movements, is of especial interest to us as physicians. It was first started in Boston as a result of the efforts of the Rev. Elwood Worcester. The primary object of this movement would appear to be to counteract the effect of Eddyism upon the Christian Church, not a purely philanthropic movement for the benefit of humanity.

A concentrated movement on the part of Christian ministers to stamp out the evil of Christian Science, would be a most laudable purpose, but the manner in which the Emmanuel Movement has started out to use what might possibly be a power in their hands for good, can only appear as reprehensible in the eyes of the medical profession.

Physicians are supposed to lend themselves to this work for diagnostic purposes only, so that the danger of unsuccess or death during treatment will be eliminated. The ministers will then be the only ones that cure, while the physicians' cases will be the only ones in which death results after treatment.

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In the Journal of the American Medical Association of January 23, 1909, is a communication from four medical men of Boston endorsing the Emmanuel Movement. I think that there is no physician who would not be glad of the moral help and confidence which the minister often inspires in the patient and, if the minister's co-operation could be had along such lines, there is no doubt that the patient, the physician and the Church as well would be benefited by it. It is tacitly admitted by these physicians of Boston that they are not competent to take care of the sick; that there is some one else not even a physician who is more competent to do the work of their chosen profession better than they are themselves.

The Emmanuel Movement will undoubtedly grow to vast proportions and the priest will ultimately be lost sight of in the healer. Not every minister is fitted by nature or temperament for such work and there will naturally arise discords among different creeds. Failure of the incompetent will reflect upon the Christian Church. What the end of that will be, only time can tell.

What may be said to the contrary, notwithstanding, the Emmanuel Movement is nothing more nor less than hypnotism. In the American Magazine for December, 1908, is depicted a treatment by the Rev. Lyman Powell. In the description of it the article says: The patient, a man, is seated comfortably in an easy chair; the light is turned down; the study is quiet and peaceful; Mr. Powell stands behind the chair and tells Mr. X. to compose himself, that he is going to sleep. "You are going to sleep; you are sinking deeper and deeper into sleep; you are asleep." These words repeated a number of times, soon produce a deep sleep in Mr. X. then Mr. Powell begins giving suggestions, in a low monotone. The same course is said to be pursued by the Rev. Worcester. This may be suggestion, or the action of the subconscious mind, but the fact remains that it is hypnotism.

In their textbook, Religion and Medicine (of which we will speak later), on page 219, it says that hypnotism, or some other form of psychotherapy, is the only rational treatment of functional nervous disease. The case of Mr. X. may be taken as an example of the treatment of inebriacy by hypnotic suggestion.

As an illustration of a different method of handling such cases, I will cite that of a man in a neighboring State. He had reached the very depths of the inebriate, was also a physical

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wreck and had been sent to the old home farm to die. A physician was called in, the one who had been present at his birth. The old doctor said: "Why, John, boy, we are not going to let you die. We will make a man of you yet. Take this medicine and I will see you again to-morrow. You will be feeling stronger by that time." John was one of those who honestly wished to reform and it is only upon such, I believe, that the suggestive treatment is successful. The old doctor told John that it was all a matter of the will power; that the will acts in response to the mind which is stronger than the body; that the body obeys the will acting through the mind, and that the more you exert this will power the stronger it becomes; that our weaknesses are usually the results of our impulses but that when we bring our will to play, aided by our mind, we can overcome the impulse and accomplish almost anything.

The arm, the foot and all parts of our bodies move in response to our will. It may be that we have a task to perform. The bodily impulse might be to sit down and rest but the mind tells us that the task should be done and our will accomplishes it. A man that is trying to overcome the drink habit rarely relapses, except as the result of an impulse over which the will has not been properly exerted.

The old doctor said that every one has sufficient will power to overcome their bad habits. Provided, however, that the will power was properly cultivated and exerted. John's will power was gradually strengthened, as a result of his own exertions under the directions of the old doctor, until, through his increased will power, he overcame the cravings for and the impulse to drink. He became a stronger and a better man in every way and today he is respected and honored as one of the leading physicians in that part of the State in which he lives.

A comparison of the two cases would lead us to infer that the first man, Mr. X., would always feel that something that pertained to his manhood had been lost and that it was not his own strength, or any power within himself, that had caused him to become cured, but rather as the subject of another's will. He would also be apt to believe that there was something lacking in him, which others might have but which nature had neglected to give him; something that was necessary to make him a perfect man. But the other one, who was treated by the old family physician, came out of his trouble in the knowledge of his own

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inherent strength to overcome just such conditions. Which, I ask you, is the better treatment? Which would you expect to be the better man as a result of the treatment? Which would be the most Godlike method to pursue in overcoming such conditions?

Those who are interested in the Emmanuel Movement recognize the fact that only a few persons possess the power necessary to successfully carry out the method of treatment. If it is true that only a few possess this power, it is not, then, a natural constituent of man but an unnatural development along certain lines of mental energy.

Nature often recognizes in youth, inadequate or perverted mental nutrition and, as a result, determines the best of certain elements of mind and develops these perhaps beyond the ordinary, but possibly, in so doing, loses the balance of the whole, with the result of an intensely brilliant mind along certain lines but without the balance and poise of other essential elements to make its work of a natural character.

A book called Religion and Medicine, edited by the Revs. Worcester and McComb, and Dr Coriat, appears to be the textbook of the Emmanuel Movement and contains 415 pages. The more costly editions are bound in the form of the Bible. It would be impossible to adequately discuss it in a short paper like this. It is a masterfully written book, as books of this character usually are, and should be read by all physicians, so that they would be able to discuss intelligently its merits. It assumes a knowledge of medicine along some lines that are usually possessed only by specialists in our profession. In the introduction it says that special pains are taken in the diagnosis of disease, and reminds me of that saying, "Fools walk in where angels fear to tread." Some of the arguments used to establish the fact of the subconscious mind could be equally well used to establish the fact of reincarnation. The effect of the book, as a whole, appears to me to be to impress the public with the uselessness of medicine in the treatment of disease.

The opening words on the chapter on hypnotism are: "We have now reached the most important part of our subject, and that is the therapeutic use of hypnotic suggestion." While there are 22 chapters in the book, the two shortest, I observe, are upon Faith and Prayer. Clinics have been established and I hear there is talk of establishing hospitals.

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In speaking of Christian Science, the Emmanuel and allied movements, I do not wish to appear rabid in what I say but there are some underlying facts in relation to mental influence that should be recognized in their true aspect by both the profession and the laity. The power of the mind, when used as God and nature intended it to be used, will prove a factor of great good to suffering humanity.

In conclusion I will say that I believe this invasion into the ranks of our profession is due to our present-day methods of training the future practitioner of medicine as distinguished from the specialists.

In forcing her way onward and upward to the mighty achievements of today, medicine has lost something on the trail and she must go back and pick it up. Years ago doctors bled, salivated and fed ground cinchona bark with a tablespoon, and the world got tired of it. Homeopathy stepped in and taught the lesson of agreeable prescribing, and the profession has profited by it. I think we are now to receive another lesson of equal importance. There is indeed something going out of the average doctor of today.

In these days students are sent direct to medical schools. There they are taught facts in all the branches of medicine. Man is taken to pieces, separated and literally analyzed. The student is admitted to hospitals where the analytical process still goes on. He often comes out a cut and dried specimen of a doctor, usually a specialist. He has missed that most essential quality possessed by the old family doctor that we read so much about. What sort of a chance would Christian Science have had against the old family doctor? It is of this that these healing cults have taken advantage, something that has nearly gone out of the medical profession.

At a recent meeting in the East, Dr. Osler said, "It would be well if all recent graduates could be taken into practise by some of the older practitioners, before they commence practise for themselves." I think that those who expect to become practitioners of medicine, should commence rather than end their medical courses with an established medical man.

In the last few years medical character building has been lost sight of, for it needs a different kind of character building in medical men than merely that afforded by a literary course. It needs that guidance and supervision that can be gained only

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by association with a physician of character and experience. The memory of a good preceptor would do much to shape the course of a medical student, and would prove a powerful lever for good. Under the guidance of such a man, the student would enter the home circle, the scene of his future ministration. He would see human suffering and human sorrow. He would see family love and happiness. He would see the mind naked in the fullness of its trust and faith in the high priest who ministers to its wants. He would learn a lesson not taught in books, or shown in clinics.

Medicine has reached a sublime height of research and achievement, but in so doing she has neglected to fit man to be a family physician. We can easily imagine what such a physician should be. One whose sterling worth and knowledge would cause the blush of shame to mantle the cheek of the doubter—a mountain of truth against a phantom-like illusion. One who has been so fitly described by Cheever when he says: "He enters the home circle upon what a mission. Of all persons the family physician alone enters the holy of holies of the home, like a great high-priest of nature. He is admitted to the bed-chamber of the young wife, from which all others are excluded, save him to whom she first yielded herself. He comes to that young mother in the supreme hour of her life, when she feels for the first time her first born's breath, and he comes again another day, when she holds her boy in her arms, when——

"Still she keeps rocking him,
Ever caressing him,
Rocking the clay of him,
While softly the soul of him,
Angels are rocking far up in the sky."

He comes often when the horizon of love is touching the dim unknown, and hearts are lightened at his coming. He enters where griefs are, with which a stranger may not intermeddle.

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Medicine and The Press

By GEORGE W. CRILE, M. D., Cleveland.

It is my first and pleasant duty to express to the members of the Section of Experimental Medicine my appreciation of the honor you have conferred upon me in electing me your Chairman.

My interest in the field of experimental medicine and my sympathy with the purposes of this section will render the duties of this office particularly agreeable. At the meetings of this section as at no other are the reciprocal relations between the clinic and the laboratory wrought out to their mutual profit. On this occasion I am tempted to speak of the rapid rise of experimental medicine, the importance of the close relations between the laboratory and the clinic, the relation of experimental to practical medicine. I am tempted to sketch the influence of some of the great discoveries in the laboratory, their influence upon not only human life but upon commerce and trade. I should like to refer to some of the needs of experimental medicine and I should like to venture some forecast of the splendid future of medicine, but I shall devote the short time I shall consume to a matter that concerns all medical men, particularly the research worker. I refer to the relation between Medicine and the Press. Everyone will agree that the present relations between Medicine and the Press are unsatisfactory to all concerned, especially to Medicine. On this occasion I will limit my remarks to two questions: What is the cause of the present unsatisfactory relation? Can it be remedied?

Some of the fundamental causes are the following: Medical men of standing have traditionally conducted themselves according to the proposition that their professional work is entirely private and privileged. The invasion of this right by newspaper publicity is universally resented. Is the quest of the newsapers for medical news due to some change in the relation between medicine and the public? Prior to the development of scientific medicine there was scarcely *any* relation between medicine and the general public. Like the practice of law to-day, the relation was to the individual, but as the age of empiricism gave way to the age of scientific medicine, medicine in its growing mastery

Chairman's address before the Section of Experimental Medicine of the Academy of Medicine of Cleveland, March 12, 1909.

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over disease has come almost unexpectedly into the gravest of responsibilities both private and public. In this rising tide of its efficiency medicine finds itself wielding a new and mighty power, affecting not alone the ordering of the life of the individual, but much of the conduct of the municipality and the State. It is, for example, making possible a world-wide conquest of the tropics by the white man; its influence upon commerce and industry is large and it is adding year by year to the expectancy of life. The public has evidenced its appreciation of the work done and its belief in the future by the bestowal of greater authority and larger responsibilities, and by donating annually millions upon millions for the construction and maintenance of hospitals, medical colleges, and research institutions. There is no question as to the general and deep interest of the public in medicine.

In recent years, in every progressive country, physicians have come to believe in the education of the public along certain useful lines. The importance of such publicity has been expressed by many national, state and local presidential addresses. Many committees have been appointed and are now at work. The profession concedes the principle of publicjty in certain directions is to the public interest, but it frequently objects to the form and the subject matter. Truly, there has come about a great change in the relation between medicine and the public.

So much for the medical end of the question. What of the Press? Evolution is here going on as well. As a class newspapers have shown a friendly feeling toward medicine. The complaint against them is in no manner a reflection upon their good intention or friendly feeling, or their willingness to be helpful. The European profession has but little cause for complaint against their press, and there are many satisfactory American newspapers. Granted good intentions, or at worst, no intentions at all, why are the columns of many American newspapers still objectionable as to their medical subject matter? In my opinion it is expressed entirely in one phrase,—lack of editorial discrimination in the use of medical news, and inappreciation of the professional rights of physicians. This, it seems to me, is the crux of the entire question.

A recent experience of mine is, I believe, typical and illustrative. On December 4, 1908, I delivered the Mutter lecture before the College of Physicians of Philadelphia, on the subject of Surgical Anemia and Resuscitation. In the January 2, 1909,

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issue of the New York Medical Journal, there appeared an editorial upon part of the lecture. In the February 14, 1909, issue of the New York Times, this editorial, with due acknowledgment, was copied, prefaced by a few comments. This article was telegraphed to the Cleveland Leader, appearing in its Sunday edition. My first intimation that it had been published at all in any form anywhere came when I glanced at the headlines of the Sunday Leader. I present herewith the evolution of the headlines and the editorial treatment. It will be noted that as it passed through each of three publications—the New York Medical Journal, the New York Times, and the Cleveland Leader—it underwent a striking transformation. What would happen, perchance has happened, should it pass through another, say of the more sensational type of newspapers?

On interviewing them, I found that in the opinion of the reporter, and the city editor who handled the article, and who were solely responsible, such an article could do no possible harm. They were much surprised when told the consequences, especially when, at my request, they asked the opinion of a number of leading physicians as to the effect of such an article upon my professional reputation. I am certain that this publication has caused genuine regret in the Leader office. Now, as any physician could have told at a glance what the objectionable features were, and so would have spared my embarrassment and the Leader's regrets, it is perfectly clear to me that the point of view of the physician has not been grasped by the press.

This instance is typical of other similar experiences and is, I am sure, typical of the experiences of other men. Is there a remedy? If the press as now conducted is not able to handle medical news to the satisfaction of medical men, two alternatives are open; namely, the prevention of medical news reaching the press, or proper censorship. Discussing the first alternative, can medical news be kept from the press? Many of the metropolitan papers have on their regular staff medical men. These men have access to all medical publications and are able to receive much informal medical information as well. In such papers as the New York Times, the Post, the Sun, the Tribune, the Boston Transcript, and other papers, there is evidence of a due appreciation of the rights and sentiments of the profession. Papers not having a staff-physician are frequently, by private arrangement with a local physician, in free communication with

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the innermost workings of the profession. At one time in this city there appeared from time to time quite correct but wholly unaccountable medical news in the local papers. Among others who were thus exploited was myself. I was able to trace this to its source and finally had a full admission from the person in question that he had supplied certain information. This physician was a respected member of the Academy. His point of view was that the information was correct, that it was of interest and value to the reading public, that in his judgment no one was injured by any of the articles inspired by him, and that he had need of the financial return. While investigating the matter at that time I was told by one of the local editors that he had access to any information he desired concerning medical affairs in the city and that he was certain that the other Cleveland dailies enjoyed equal facilities.

It is obviously absurd to suppose that communication with the press can be severed. Even if it could be, is it desirable to keep all medical news from the public? The press is, or may be, beyond doubt the most powerful means of influencing public opinion in the beneficent lines so much desired by all medical men,—the teaching of hygiene, public health, sanitation, preventive medicine, and other subjects of general interest and benefit. Why not harness the forces of contention to do the work of useful public enlightenment? From my investigation, I am satisfied that the press would welcome co-operation in professional matters. I believe, indeed, I have been told that the press would be glad of reasonable medical news supervision by a responsible physician or a committee of such,—a committee which would pass upon both the contents and the form of all press items affecting our profession, and advise the local dailies as to the probable effects of such "news" on the public and on the profession. Much harm could thereby be prevented and much good could be accomplished. Or would it be still better to have an accredited medical editor attached to each paper?

We must remember that in meeting the antivaccinationist, the antivivisectionist and other foes of medical sense and progress we need every weapon we can command. If the profession will take the necessary steps I believe that order may be brought out of chaos, that out of a better understanding both the press and the public will be benefited and the physician, now powerless to prevent it, will no longer suffer embarrassment and the loss of reputation from unauthorized but bizarre publications.

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The Diagnosis and Treatment of Brain Tumor

By ARNOLD PESKIND, M. D., Cleveland.

It has been suggested to me that the diagnosis and treatment of brain tumors would be a timely topic to be reviewed during one of our meetings. Though claiming neither originality in investigation nor the endowments of the trained specialist in this important branch of medicine, I offer no apologies for errors of omission, because those more expert in these studies are expected to contribute the fruits of their experience and thus fill in the gaps with their remarks. Nor shall there be any reference made to authorities, nor sources from which the data of this article are collated, as the object is not to write an index of the literature of the subject but to be an incentive medium for a profitable discussion. It is needless to say that the diagnosis of brain tumor is not always the physician's most easy task. In fact, the chief characteristics or symptoms of brain tumor are seldom pathognomonic and the difficulty of their interpretation is often embarrassing. Even the presence of the most pronounced symptoms referred to the brain, as the organ involved, and upon which a general diagnosis is formed is not reassuring that one has to deal with a tumor. Even with a history of headache, vomiting, vertigo, convulsions, papillary disturbances, alteration of muscular phenomena, perversions of sensations, mental aberrations and circulatory, and often respiratory, disturbances as prominent, suggestive and significant symptoms, one is seldom justified in declaring positively that there is, or is not, present a brain tumor. The most painstaking analysis of all symptoms and the exclusion of every other morbid process with similar manifestations are essential elements in deciding the nature of the brain lesion under consideration, and then only a tentative or probable diagnosis is often reached.

A REVIEW OF SYMPTOMS UPON WHICH A GENERAL DIAGNOSIS IS BASED.

The irritative symptoms are the first complained of. Of these, headache is pre-eminent. It is intense, more or less persistent, often constant but at times intermittent, irregular or paroxysmal, it is worse in some forms of tumor than in others,

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on account of the situation of the growth, and it may be worse at some particular time of the day, like the nocturnal headache in syphilis. The headaches are usually described as being deep-seated and are either diffused or localized.

But headache, while a characteristic and almost a constant symptom of brain tumor, is by no means pathognomonic. The various toxemias, vascular and circulatory disturbances and many functional affections are accompanied by headaches, more or less intense and persistent, and may require very careful analysis and interpretation. The history of the case and other coincident pnenomena will usually point to the source of the headache, thus the saturnine headache is accompanied by lead palsies, while details in the histories may indicate various other metallic poisonings which have complications peculiar to themselves. Previous gouty and rheumatic attacks, as the possible cause of the headache, must be taken into consideration.

The uremic headaches which also belong here are, however, very puzzling, as they are accompanied by most of the symptoms of brain tumor and are also frequently due to increased pressure of the cerebrospinal fluid. The clinical and microscopic examination of the urine, the findings with the opthalmoscope and the foul breath of gastro-intestinal origin will help to dispel the uncertainty.

Migraine may be persistent and severe but it is always hemicranic, though not necessarily always confined to the same side. It is rather superficial, covers a wide area and is usually accompanied by a fulness of the blood-vessels on the affected side, which subsides with the seizure. The headache in brain tumor is also intense but more persistent, more or less localized, deep-seated and more marked over the seat of the lesion. This is not necessarily so since the headaches of basal growths are, at times, referred to other parts of the cranium, causing, for instance, facial or ocular neuralgias.

The hysterical headache is usually superficial or described as if a nail were being driven into the head. It is usually less intense, often relieved on deep pressure or when the patient's attention is distracted and is accompanied by other hysterical stigmata. But here let it be remarked that serious brain lesions are often marked by hysterical symptoms which mislead the physician from the real underlying organic cause of the phenomena.

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The headaches of anemia may, at times, offer an obstacle to diagnosis but a little patient study of the case will show the cause not to be of a local organic origin.

The headaches caused by diseases of the adjoining organs such as purulent affections of the nose and sinuses, nasopharyngitis and defects of the eyes must not be overlooked. They may require careful consideration before it can be said that the headaches are, or are not, due to a brain lesion.

Vomiting is a frequent symptom and is seldom accompanied by nausea, though the latter may be very persistent and very annoying. It is uninfluenced by food, is more frequent on an empty stomach and almost regurgitant in character. It may come on with the slightest change of posture and in the absence of all digestive disturbances.

Vomiting, however, by itself, is of little value as a symptom of brain tumor but it is of great significance in the presence of headache and vertigo. While met with only in one-third of the cases of brain tumor, it is rather a frequent symptom in lesions of the posterior regions of the brain, being produced through the compression of the vomiting center situated in the medulla oblongata. The peculiar character of the vomiting differentiates it from that produced by other than intracranial lesions.

The vomiting of uremia calls for special attention as it is the most misleading, but the concomitant digestive disturbances and the other clinical data supplied by renal insufficiency usually explain the cause of the vomiting.

Vertigo is a common symptom, though not such a constant one as headache, and often accompanies headache and vomiting. It is frequently very distressing, affecting the stability of the sufferer, and may precede or follow a convulsive seizure.

Vertigo is of common occurrence in lesions in the vicinity of the cerebellum, pons or medulla oblongata. In a few rare cases it has appeared to be the only symptom, and I have now one case under observation in which this constituted, for a long time, the only complaint. This patient, a girl of 15 years when she first consulted me for this vertigo, has, after various experiences of five years' duration, developed characteristic motor disturbances which unmistakably locate the seat of the growth. In such cases this symptom is very misleading and the most careful exclusion of other forms of vertigo, due to extracranial origin, is necessary before one can arrive at a probable diagnosis. Nor must this

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fact be overlooked that patients do not always interpret this symptom of vertigo correctly, but will describe their experiences in most peculiar terms, such as feeling faint, sinking spells, etc. Sensations, entirely different in character, they will call vertigo, thus the intermittent disturbances of muscle-sense in various brain lesions are spoken of as vertigo although they really have nothing to do with this symptom. The vertigo of neurasthenia, of hysteria, from gastro-intestinal sources, from eye defects and from labyrinthine diseases must be excluded when brain tumor is suspected.

The optic discs become choked as the growth advances and symptoms of compression and destruction of brain tissues are more pronounced. This lesion is one of the most valuable signs in brain tumor and is said to be present in about 90% of these cases. Though met with in some other diseases of the brain, bilateral choked disc always deserves special attention.

Muscular and sensory irritabilities are met with affecting single parts of the body or a whole half or both sides of the body at the same time, depending upon the seat of the neoplasm and the parts of the brain pressed upon. These are often very valuable guides to the source of the brain trouble.

Mental hebetude is often an early symptom and often deepens as the disease progresses.

Circulatory and respiratory derangements are very common in brain tumor. The slow, irregular pulse is the most frequent accompaniment in the later stages of the disease.

Besides the above symptoms, the physical methods of investigation, in addition to the ophthalmoscope, are of immense value in establishing a diagnosis, thus palpation, percussion, auscultation, lumbar puncture, and radiography are pressed into service to discover the presence of a tumor in the brain.

THE DIFFERENTIAL DIAGNOSIS OF BRAIN TUMOR FROM OTHER INTRACRANIAL DISEASES.

Intracranial affections, which must be considered in the differential diagnosis of brain tumor, are perplexingly numerous. Those most frequently met with can be divided into:

1. Inflammatory: Tuberculous and epidemic meningitis, meningo-encephalitis, encephalitis and polio-encephalitis, pachymeningitis hemorrhagica, abscess, hydrocephalus, scars and con-

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tractions of the brain coverings resulting from effects of inflammation or injury to the cranium.

2. Toxic and infectious diseases: Saturnine lesions of the brain, alcoholism, uremia, influenza, etc.

3. Circulatory disturbances: Arteriosclerosis, embolism, thrombosis, softening from local nutritive disturbances, angiectasis, etc.

4. Degenerative and irritative disturbances of the brain substance which are not due to any one of the above mentioned causes, but which possess clinical characteristics occasionally simulating brain tumor, as cerebral sclerosis, multiple sclerosis, dementia paralytica, hysteria, epilepsy (essential, traumatic or uremic), etc. Only the most pronounced morbid processes will be considered.

Acute meningitis has many symptoms in common with brain tumor—headache, vomiting, torpor, convulsions, contractures and, at times, optic neuritis. The onset, however, of meningitis is sudden and is accompanied by fever, the abdomen is retracted and Kernig's sign is present. Spinal puncture may be of great help in confirming the diagnosis of meningitis: the polyneucleosis of cerebrospinal meningitis, the polylymphocytosis of the tuberculous variety and the possibility of finding tubercle bacilli in the latter will establish the nature of the meningitis. Though a tuberculous meningitis may cause localized symptoms and thus increase the difficulty of diagnosis, the invariable presence of an intermittent fever will point towards tuberculous affection of the meninges.

Meningo-encephalitis, and polio-encephalitis may produce focal symptoms with papillary disturbances but the sudden onset of the disease, the history of traumatism or of acute infection, the febrile course and the more pronounced symptoms of acute cerebral irritation will favor the diagnosis of an inflammatory disease of the brain or its coverings.

Hemorrhagic pachymeningitis often produces symptoms of local pressure or may be accompanied by local softening of brain tissue. It may also produce choked discs, especially when the hemorrhage is basal and presses on the optic nerves. Usually, however, the papillary symptoms are unilateral and a history of alcoholism or syphilis is easily obtained.

Abscess of the brain may have striking symptoms in common with tumor, even producing pronounced localization phe-

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nomena, and it may be next to impossible to differentiate it from a rapidly growing brain tumor. The usual history of brain abscess, however, is peculiar to the disease, the previous history of purulent inflammation in the ears or sinuses, traumatism, basal osteitis and the presence of septic fever suggesting abscess. Papillary stasis in abscess usually affects one eye and is homolateral. Abscess more frequently than tumor is ushered in with characteristic phenomena of apoplexy, though the sudden hemorrhage of a latent glioma may be the first indication of the existence of any brain lesion. The usual seat of abscess is in the proximity of the original focus of infection, in the temporosphenoidal or cerebellar regions when caused by suppurative otitis, or in the frontal region when following sinusitis. It is the abscess of traumatic origin which is often very obscure as it may appear a long time after the accident has occurred and when, perhaps, it has been altogether forgotten. But here also, on careful search, one may find irregularities of the cranial surface, fever and polynucleosis of the cerebrospinal fluid, though many such abscesses will baffle all our skill to the very end, especially when they are small and focal.

Chronic hydrocephalus is often accompanied by symptoms strikingly similar to tumor of the brain and a differential diagnosis is at times almost impossible. Usually of infectious origin, it is frequently due to hereditary syphilis and syphilitic endarteritis. It is also acquired during fetal life through infectious diseases of the mother. It is met with in infancy and even later in life as the result of encephalitis of traumatic origin and may then accentuate symptoms characteristic of focal lesions. Besides this, chronic hydrocephalus may be a complication of brain tumor, especially of those which are connected with the ependyma. The history of the evolution of the disease, the cranial deformity and the examination of the cerebrospinal fluid may aid in the diagnosis, though errors are not avoidable.

Traumatism may produce all the symptoms of neoplasm. These may develop suddenly or evolve slowly along with the gradual increase of the resulting effusion or cystic formation. Softening may be produced along the line of fracture or due to the osteitis, subsequently started as a result of the traumatism. The localized meningitis and encephalitis, the resulting adhesions and scars of the meningeal surfaces often produce focal symptoms, motor as well as sensory. It is only by the most minute

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study of the previous history of injury, if obtainable, the observance of the presence of marked external irregularities of the skull and the careful analysis of central or peripheral disturbances, that a diagnosis can be made. This fact must always be kept in mind, however, that trauma itself is a frequent cause of neoplasm, so that, with the given history of a severe previous craniocerebral injury, the possibility of the development of a posttraumatic neoplasm is not to be ignored.

The toxic and infectious affections of the brain and the circulatory disturbances which may produce symptoms of tumor have already been mentioned. Excluding aneurism which must be classed with the tumors of the brain, basal endarteritis and cerebral arteriosclerosis require the greatest consideration, as they are the most frequently met with and are often the most protean and delusive of brain lesions. Not only by affecting the nutrition of the various parts of the brain, but by the mechanical pressure over the nerve trunks, the hard vessels of arteriosclerosis produce paretic or paralytic symptoms and are often accompanied by severe neuralgias and less frequently by attacks of vomiting and disturbances of vision. I have known cases, in which the most intense, deep-seated and localized headache lasted several months before an attack of apoplexy and after death nothing else but the arteriosclerosis could be found to account for all the symptoms.

A diagnosis of the probable nature of the disease can be derived from the study of the vascular system, the age of the patient, the hypertrophied heart, the possible coexistence of the nephritis and the absence of genuine choked discs or of marked focal lesions. These focal lesions develop gradually and progressively as in tumor but when they do occur they come on suddenly from an acute hemorrhage and are then accompanied by other symptoms of apoplexy. A coexistent brain tumor will necessarily render a diagnosis almost impossible.

In some grave forms of cerebral anemia, symptoms of brain tumor have been noticed and only the rigorous institution of tonic and reconstructive treatment will eliminate the possible presence of a more serious craniocerebral new-formation.

Cerebral sclerosis, though a disease beginning in early infancy, has produced symptoms simulating brain tumor and in addition, spastic paralysis with contractures and atrophies, convulsions, vertiginous phenomena, stupor bordering on idiocy and

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hemiplegia with pronounced paralysis of the upper limbs simulating focal cortical lesions and giving rise to a suspicion of brain tumor. In this form of sclerosis, the focal symptoms are never very pronounced, nor are they as gradual or progressive in development as in tumor, and if papillary edema should be found it is usually transitory. Cerebral sclerosis with very pronounced focal symptoms usually suggests a cystic or other growth complicating the sclerosis.

Multiple sclerosis and brain tumor are strikingly dissimilar in their phenomena, nevertheless, at times, confusing symptoms may arise and render a diagnosis very difficult. Thus, the cardinal symptoms of the one may not all be present, and either of the two diseases may produce similar symptoms. Multiple sclerosis may be accompanied by epileptiform and apoplectic symptoms, by headache, vertigo or disturbances of vision and these may be the earliest and only signs. Again brain tumor, especially of the base of the brain, may show signs of choreiform and athetotic movements, intention tremor, a more or less scanning or hesitating speech, nystagmus, paralyses of associated eye movements, spastic paralysis of the extemities and ataxic gait. Multiple sclerosis of the lenticular or caudate nucleus may be accompanied by the spasmodic meaningless laughter, which is noted in patients with tumor of the same area, or the sclerosis is accompanied by symptoms of progressive bulbar paralysis. The mental vigor may decline *pari passu* with the paralysis of the sclerotic state.

In these cases the degree of severity or expression of the symptoms, their constancy and progressiveness are to be relied upon to settle the question of diagnosis. The headache, the vomiting, papillary edema and cerebral torpor are pronounced in tumor and they are more intense, continuous and progressive, while in multiple sclerosis they are rather remitting, the disease evolves much more slowly and while the papillae may be partly atrophied they are never edematous and the atrophy is never bilateral nor complete. The spasmodic movements due to tumor are persistent and, while not as pronounced, they continue during sleep and rest. The tremors of multiple sclerosis are purely intentional. The speech is usually slower and more hesitating in sclerosis and sensory disturbances are very common. The fluid obtained by lumbar puncture often contains lymphocytes and polymorphonuclears which, of course, are absent in neoplasm unless the latter is complicated by meningitis.

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General paralysis of the insane presents, at times, focal manifestations which may simulate tumor. In this disease the absence of the characteristic edema of the papillae due to tumor; the presence of the irregular grayish discoloration of the discs usually seen in diffuse chronic encephalitis; the presence of lymphocytosis in the spinal fluid; the occasional remission of symptoms; the unequally fixed pupils and the mental derangement, which tends early towards idiocy, will aid in differentiating general paresis from tumor. The complication of paresis with a syphilitic gumma will render the diagnosis for a time doubtful but antisyphilitic treatment will probably remove the gumma without influencing the remaining encephalitis.

Epilepsy, especially when due to traumatism or uremia, may present symptoms in common with tumor. The effects of scars and adhesions of the meninges following craniocerebral injury and causing Jacksonian epileptiform seizures, have already been mentioned. The uremic type is, at times, the most perplexing. The headache, vomiting, disturbance of vision, various phenomena of focal irritation and mental torpor may all be present to a degree to simulate tumor, and one has to rely upon the symptoms of marked gastro-intestinal disturbances and neuroretinitis, with other changes characteristic of renal insufficiency, to explain the cause of the epileptiform seizure.

Hysteria, this mimic of the preternatural, must always be kept in mind when studying some cases of brain tumor. The errors committed in the name of, or against, hysteria are sufficiently numerous to admonish the most expert that it is human to err. Of course the invariable inconsistencies, discrepancies and bizarre of the symptoms will always speak for hysteria. The eye symptoms are characteristic and never like the disc-phenomena of tumor. But the avenues for mistakes are numerous, especially when it is possible that this "maladie à vapeur" may have for its causation some occult irritation of a gross organic origin.

(To be continued.)

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Report of a Case of Rupture of the Vaginal Vault During Labor

By ARTHUR J. SKEEL, M. D., Cleveland.

Mrs. W. Austrian, aged 20 years, primipara, was sent to my clinic at St. Clair Hospital with the following history:

She was a healthy strong woman and had had no noteworthy previous illness. She was pregnant at term. Labor began on Saturday morning with a midwife in attendance and continued throughout Saturday night, Sunday and Sunday night. Monday near noon a physician was summoned who recognized that the case was a difficult one and called a fellow practitioner to his assistance. Version and forceps were both tried and failed, the forceps repeatedly slipping. A severe laceration of the left lateral wall of the vagina, extending through the levator ani muscle, resulted from one of the attempts at forceps delivery. At about 4 p. m. Monday it was determined to send her to the hospital for delivery and I was called to the case.

I found a large fleshy woman in poor condition, with face pinched, rapid weak pulse, but with no signs of hemorrhage. The uterine fundus was high up, the contraction ring at the umbilicus. The fetal heart could be feebly heard in the lower left quadrant of the abdomen. Attempts at abdominal palpation were unsuccessful on account of the fleshy abdomen and the rigid condition of the uterus. The pelvis was of the generally contracted flat type. Examination under anesthesia revealed a vertex presenting L. O. P. There was no engagement but a large caput had formed. Upon passing the half hand, preliminary to the introduction of forceps, it was discovered that the hand instead of passing into the uterus, passed directly into the abdominal cavity posteriorly and came into contact with the external surface of the posterior uterine wall. The cervix was free above the pelvic brim, not, as is so frequently the case in delayed labor with contracted pelvis, imprisoned between the head and pelvic brim. Careful palpation of the cervix revealed that it was tightly stretched about the head, running from the sub-occipital region on the left posteriorly, and tightly constricted about the face which looked anteriorly and to the right. The tear occupied the posterior portion of the vaginal vault, par-

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ticularly to the right and seemed not to involve the broad ligament. There was no intestinal prolapse.

The woman was not in condition to stand an abdominal section and would almost certainly have died on the table had this been attempted. In view of the fact that the fetal heart could still be heard, an attempt was made to apply axis traction forceps, but I was unable to pass a finger between the cervix and fetal face, much less to slip the forceps blade in, on account of the exceeding tightness of the cervical constriction. The only remaining resource was craniotomy and this was accordingly reluctantly done. The application of the cranioclast was without particular difficulty inasmuch as the intracranial blade corresponded in position to the location of the laceration, that is to the right, whereas the outer blade could be applied to the left where the maternal tissues were uninjured. The child was then delivered without difficulty. As there was no hemorrhage, and no descent of the intestines, and the woman was by this time in a very critical condition, the vaginal rent was tamponed with sterile gauze and she was returned to bed. She died of general peritonitis on the sixth day.

This death, it seems to me, should not argue strongly against the non-operative treatment of this condition when the case has been in skilled hands from the beginning. The fatal issue in this case was undoubtedly favored by the conditions present during the first two days of labor.

As to whether the rupture was produced by the attempts at delivery or occurred spontaneously I am unable to state positively. It might, however, have been present before any attempts at artificial delivery were made, as the stretching of the vaginal walls above the pelvic brim and the retraction of the cervix high up on to the head made discovery of the condition practically impossible without the introduction of the half hand high up and palpation of the fetal face. Moreover the conditions favoring spontaneous vaginal rupture were distinctly present, that is prolonged severe labor with overstretching of the vaginal attachments, and the cervix not caught between head and pelvis, but freely retracting as uterine contraction made traction upon it.

This retraction of the cervix above the pelvic brim is more likely to occur in a shoulder presentation, since the configuration of the presenting part is not such as to favor catching the cervix between it and the pelvic wall. On the contrary, according to

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Von Winckel, rupture of the lower uterine segment proper is more likely to occur either when the completely dilated edematous cervix is imprisoned by the presenting part, or when, dilatation failing, the thinned out lower segment and cervix are pushed in front of the advancing head. In the former case the vaginal wall, being less strong than the uterine wall, is more likely to tear. In the latter two conditions, the lower border of the cervix being fixed, contraction of the upper segment with the upper fetal pole as a point d'appui serves with each succeeding pain to stretch the wall of the lower segment and finally to rupture it.

Congden in 1906, in a collection of 98 cases of rupture of the upper genital tract, found only three of rupture of the vaginal vault only. One of these is stated to have been ruptured by forceps, one not stated, and the other was a spontaneous rupture, with transverse presentation.

With regard to the responsibility for uterine rupture, Congden says, "Uterine rupture at or near term is occasionally inevitable, and the fact that it occurs during endeavors to expedite labor rather than spontaneously, is by no means to the discredit of the accoucheur. If anything the accoucheur should be blamed if the rupture occurs during a prolonged and difficult labor without instrumental or manual assistance."

The responsibility in this case undoubtedly rests with the original attendant (a midwife) for allowing the patient to continue 48 hours in labor before securing medical aid.

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Anemia Due to Recurrent Nasal Hemorrhages

By MYRON METZENBAUM, B. S., M. D., Cleveland.

The clinical picture of anemia caused by a frequent loss of blood is well recognized, but that an anemia may result from recurrent hemorrhages from the nose has not been generally considered.

Nasal hemorrhages vary in degree from the passing of slight quantities of blood to profuse bleeding necessitating the plugging

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of the nasal canal. They may cause only a temporary pallor or produce a considerable degree of collapse. The bleeding may occur daily or at longer intervals.

The effects may be transitory but in most cases in which the loss of blood is frequent and considerable in amount, the constitutional effects are the same as are produced by the frequent loss of blood from any other part of the body, viz.: pallor of the skin and mucous membranes of lips, tongue, mouth and conjunctiva, coldness of limbs, lassitude, dizziness and the other usual signs of anemia.

In 20 of my cases I found by the Tallquist blood scale the hemoglobin to be 70 to 80%.

The causes for repeated nasal hemorrhages may be malignant growths, luetic, tuberculous or diabetic ulcerations, congestion of the portal circulation or high arterial tension due to cardiac or nephritic disease. But the most frequent cause is the rupture of very small superficial arteries on either side of the cartilaginous septum.

The arteries in this area frequently appear as a bright network lying in the mucous membrane and congestion, slight injury, picking or strong blowing of the nose may cause a rupture with a consequent hemorrhage. A scab will then form at the point of rupture and repeated picking off of the scab will finally result in a small ulcer which bleeds at the slightest provocation.

The popular idea that a nose bleed is beneficial has no foundation, excepting possibly in the plethoric. In all other cases the frequently recurring nose bleed is a detriment as is proved by the general improvement usually following treatment which prevents the bleeding.

The treatment consists in the destruction of the bleeding and ulcerated superficial arterial area in the mucous membrane of the cartilaginous septum by making a linear cauterization at the base of this area with either the chromic acid bead or electrocautery sufficiently deep to destroy these vessels. This results in the permanent arrest of the loss of blood and a consequent general improvement.

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Two Cases of Locomotor Ataxia with Abductor Paralysis of the Vocal Cords

By WM. B. CHAMBERLIN, M. D. Cleveland.

Freudenthal of New York in the *Journal A. M. A.* during the past year has called attention to the importance of abductor paralysis of the vocal cords as an early diagnostic sign in locomotor ataxia, and in the same *Journal* Freer and Friedberg have reported a case possessing especial interest.

The laryngeal condition is often overlooked because no complaint is made by the patient unless more or less typical laryngeal crises occur, ushered in by severe cough and followed by marked inspiratory dyspnea with occasional unconsciousness. The voice may offer little or no suggestion as to the impaired motility of the cords even where the paralysis is marked. Single examinations may be very misleading, as shown by Freudenthal's article. Successive and repeated examinations are often necessary to demonstrate the paralysis.

The two following cases would seem to be of special interest as it was the laryngeal condition in each which brought the patient to the hospital. One case is remarkable on account of the length of time which elapsed between the early locomotor symptoms, as brought out only by most careful interrogations, and the appearance of the laryngeal condition.

Case 1. The patient, 80 years of age, was strong and well and worked every day at his trade as pattern maker. About 10 months ago, while eating an apple, part of the covering of one of the seeds lodged in his throat. Since then he had been bothered more or less by a sticking sensation in the throat. For several days, after taking cold, he had been rather hoarse and had had some sensation of choking. There was some difficulty in swallowing even liquids and occasionally he coughed up food while eating. He could not eat solids. Patient denied lues, but admitted he had had incontinence of urine 25 years ago with occasional bed-wetting, etc.

Laryngeal examination showed the cords slightly congested, meeting in the mid line on phonation, but on deepest inspiration separating not over one-eighth to one-quarter inch. Further examination gave a positive Romberg sign. Argyll-Robertson pupil and loss of knee jerks. Patient was admitted to Lakeside Hospital where the diagnosis of locomotor ataxia was confirmed.

Recent communication with the family disclosed the fact that the patient died three months ago of cancer of the throat.

Case 2. C. M., aged 35, 10 months ago noticed a crowing sound on deep inspiration, with some hoarseness. He thought he had caught cold from steam blowing in his face, while at his work as an engineer. He soon noticed that he became very short of breath on slight exertion. He denied lues. The case was referred for examination by C. F. Hoover, with a diagnosis of locomotor ataxia.

Read before the Ophthalmological and Oto-Laryngological Section of the Academy of Medicine of Cleveland, March 26, 1909.

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Laryngeal examination showed the cords meeting well in the median line on phonation. The voice was normal. On deep inspiration the cords separated not more than one-eighth inch and the crowing sound, of which the patient complained, was at once noticed.

The above cases are typical illustrations of the well-known law of Semon, that functional disturbances, e. g. hysterical aphonia, affect the adductor mechanism which closes the glottis, while organic lesions affect the abductor mechanism first. So in degenerations of the nerve supply the abductors always succumb before the adductors.

Practical Examinations for the Medical License

An important step recently taken that will have a tendency to raise the standards of medical education is the inauguration of the practical examination by two state examining boards, those of Ohio and Massachusetts. During the written examination, in June, in Ohio, each of the one hundred and sixty-one applicants was called on, in the presence of the entire class, to make a urinalysis and to identify under the microscope histologic, pathologic and bacterial specimens. It required about 50 minutes for each applicant to complete the practical test; he was then given an extension of time to finish his written examination. The results were reported as highly satisfactory. The Massachusetts board required each applicant to give a demonstration on the obstetric manikin and to make a urinalysis, as well as to identify specimens under the microscope. It was stated that many who took these practical tests seemed totally unfamiliar with the microscope. The board proposes in its future examinations to require also the use of the stethoscope as well as demonstrations on the cadaver and the application of bandages and surgical dressings. It has recently been announced that within the next few months the boards of Minnesota and Indiana will require, in addition to the written examination, practical tests in histology, pathology, bacteriology and urinalysis. These practical tests have long been required in the medical license examinations in other countries. Their requirement by state licensing boards in this country is, indeed, most important and timely. They enable the boards readily to differentiate the applicant who has undergone merely a cramming process by "quiz-compend" methods from one who had training in practical laboratory and clinical work. Since the necessary apparatus and material for making these tests are so easily obtained, it is hoped that many state boards will soon require them as a part of the license examination.—*Jour A. M. A.*, April 24, 1909.

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The Cleveland
Medical Journal

CONTINUING { THE CLEVELAND MEDICAL GAZETTE and THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

The Official Organ of the Academy of Medicine of Cleveland

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EDITORIAL

Activities of Ferments

Few medical men probably realize the immense amount of work which has recently been done on the activities of ferments. Everyone is more or less familiar with the digestive ferments and with the importance of their action in the digestion of food, but beyond the digestive tract, in the tissues and organs, there exist other ferments performing all sorts of chemical reactions and whose existence until recently had only been suspected. These tissue ferments, or enzymes as they are called, can be isolated from the tissues by crushing the latter with quartz sand and then expressing the tissue juices under a high pressure (300-500 atmospheres). They are remarkably specific in their activities and they can carry a chemical reaction either in the direction of an analysis or a synthesis

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of a molecule. Thus, if we consider the case of proteid. During the digestive process this is split up—hydrolyzed—into comparatively simple bodies which are then absorbed into the intestinal epithelial cells.

These simple nitrogenous bodies cannot, however, be detected in the blood; so that somewhere, perhaps in the intestinal epithelium itself, they must have been resynthesized into proteids. This synthesis, wherever it occurs, is undoubtedly the action of a ferment. The proteid thus reconstructed, is carried by the blood to the tissues where it meets with another proteolytic ferment which again breaks it up into simple bodies and these are appropriated by the tissues and synthesized into the proteid peculiar to their protoplasm.

It is a natural question to ask why there should be so apparently needless a repetition of disruption and synthesis of the molecule. The reason undoubtedly is that by such a process it is possible for each tissue to appropriate from a common stock proteid (as serum proteid) whatever constructive material it may desire. Much of the fat that is deposited in the tissues can be shown to be directly derived from the fat of the food, but not so with proteid: the proteid of the tissues is always the same, it does not change in nature with the proteid of the food. This has been very clearly shown by experiments conducted by Abderhalden and his co-workers in Berlin. These observers fed animals with excess of some proteid containing an unusually large amount of one very easily recognizable decomposition product which, however, is not especially prominent among the decomposition products of tissue or blood proteid. They found that such feeding had no influence on the nature of the decomposition product of the tissue or blood proteid.

For the construction of tissue proteid a multitude of chemical substances (amido-acids, aromatic bodies, hexone bases, etc.) have to be available and the proteid of each tissue requires not only different varieties of these but also the different proportions. Each proteid molecule assembles its necessary building stones from some common store and it appears never to err in its choice: all this intricate process is controlled by ferments.

Similarly the tissue ferments can be shown to be responsible for the absorption and assimilation of fats; for the oxida-

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tion of oxypurins to uric acid; for the oxidation processes in the tissues, etc.

In the laboratory to effect most of these transformations, energetic chemical agencies must be employed; intense heat, strong mineral acids or alkalies, high pressure, etc., are the forces which the chemist must employ to bring about the same reactions which, in the animal bodies, seem so easily effected by the ferments.

Congenital Syphilis and Treponema Pallida

The admission of Treponema pallida as the etiologic factor in syphilis led at once to a variety of studies concerning the relation of the organisms to the different types of lesions, studies which in the main have led to the more or less expected finding that there were more in the primary and secondary lesions than in the tertiary. In a recent issue of the *Journal of Infectious Diseases,* Schultz has dealt with the subject particularly as concerns syphilis of the hereditary type, causing death either before birth or soon after. In a long routine series of all suspected cases referred to him, and examined by the standard methods, some interesting results and conclusions were reached. In many cases in which the gross and microscopic lesions were sufficient to make a diagnosis of syphilis possible on the evidence heretofore accepted, no organisms were found. Careful study indicated that while the whole picture of fibrosis, etc., was usually associated with the presence of Treponemata, any of the separate lesions might be found in non-syphilitic conditions. In fact in the cases in which there were both lesions and organisms, the only constant lesion was in relation to the vessels and notably the perivascular lymphatics. In the more advanced cases this process spread in each direction, into the intima, and out into the adventitia, associated with an infiltration of lymphocytes often of such a degree as to obscure the original picture. In all these cases, however, in which there was more or less microscopic change, the organisms were not present in very large numbers, and death was probably due to a combination of the actual pathologic change and to toxemia. Another class of great interest has also appeared in the course of the work, bearing a close analogy to cases of bacteriemias of various types in which death is due to a flooding of the system with the organisms, before there is time for the develop-

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ment of pathologic changes. In certain of the suspected cases, including some stillbirths and some postnatal deaths, there are enormous numbers of organisms, without any demonstrable lesions. Here death may be due to direct intoxication, or to any of the causes concerned in an overwhelming of the system by pathogenic organisms. These cases are of great interest and it is certain that observers following the same routine will be able to add others. The contention of the author, based on his findings, is that the diagnosis of syphilis should not be made in this type of case without demonstration of the organism, and also that suspicious deaths in infants before or after birth should be investigated by a suitable routine before it can be said that they are not syphilitic.

The Prevention of Blindness

The educational campaign instituted by the Ohio State Commission for the Blind, with a view to lessening the prevalence of blindness due to ophthalmia neonatorum, is a move in the right direction. A small pamphlet has been issued giving advice to nurses and midwives for the recognition of this disease and pointing out the need for proper treatment. The indiscriminate distribution of the pamphlet has been considered inadvisable lest the prospective mothers be unduly alarmed. As the circular points out, in at least 25% of the new admissions to the Ohio State School for the Blind the cause of the trouble has been ophthalmia neonatorum, a disease which is most amenable to proper treatment if only it be instituted early. If this treatment required special skill or if operative procedures were necessary there might be some excuse for blindness in some of these cases, but the treatment is simplicity itself if prophylactic measures are taken such as the instillation of solutions of the silver salts. Even if the disease has obtained a foothold it can usually be cured if active measures are taken at once. The diffusion of this information is but one of the evidences of the Commission s activities. Efforts are also being made to ameliorate the condition of the blind by encouraging their industrial education so that they need not be dependent upon their relatives, friends or the community. The work of the Commission has been brought

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to the notice of the Academy of Medicine of Cleveland and has been heartily endorsed by it. The Cleveland Chamber of Commerce has taken similar action.

Department of Therapeutics

Conducted by J. B. McGee, M. D.

Bromid Eruptions: In the *New York Medical Journal* for March 20, Frank Crozer Knowles considers unusual cases of bromid eruptions in childhood. The recognition of the many forms of this trouble is of extreme importance, because of the frequency with which the drug is administered in childhood. In several of the cases reported the continued administration of the drug, after the diagnosis of the cutaneous condition, has led to a long continued and somewhat malignant outbreak. S. Weir Mitchell produced the eruption with the ammonium lithium, sodium and potassium bromids, each having been administered separately. Three principal etiologic theories are suggested: (1) That of skin elimination, the drug acting as an irritant as it passes through the cutaneous tissues or glands. (2) Increased skin elimination due to the defective condition of the ordinary eliminative organs, particularly the kidneys. (3) The neurotic theory (Morrow), the suggestion that the eruption is due to the influence of the drug upon the vasomotor centers, upon the peripheral nerves or else purely reflexly. Naturally the best way to prevent an eruption is to administer the bromids in as small doses and over as short a time as possible. Probably the best prophylactic measure to be carried out with those who are compelled to take the drug over long periods, is the addition of Fowler's solution or some form of arsenic to the bromid prescription. As to the treatment of the eruption itself, any mild antiseptic lotion or salve will be a sufficient local precaution, a diuretic such as potassium citrate will be of use, but, first and foremost, stop if possible the bromid. Several cases have been reported in which the eruption rapidly disappeared under local antiseptic treatment and the administration of arsenic internally. He thus summarizes: (1) Bromid eruption may occur in those susceptible, independently of the dose of the drug or the length of administration. The larger the dosage and the longer the ingestion, the greater the chance of an outbreak. (2) There are practically no constitutional or subjective symptoms in most cases. (3) Because of the slow elimination, the eruption may continue to appear for some weeks after the drug has been discontinued. (4) Almost any type of eruption may be present in childhood. The lesions are usually larger and more persistent than in adult life. The extremities and the face are the parts most frequently attacked. The most extensive eruption, in the majority of the cases, occurs upon the legs. (5) Lesions have a great tendency to occur at points of previous inflammation, such as on vaccination scars, injuries, etc.

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Antitoxin: H. F. Gillette in the *Therapeutic Gazette* for March, treats of the untoward results of diphtheria antitoxin, especially in asthma. We had been taught that antitoxin was safe in any condition given in doses from 500 to 20,000 units; in fact we were told that the serum was as harmless as the normal saline solution and that no maximum dose limit had been discovered—all of which is quite true with several exceptions to the general rule, and when that exception occurs it means possible death to the patient and a very unpleasant experience to the person who administered the serum. In 28 cases in which collapse or death had followed the administration of horse serum he had been able to obtain details as to the previous history of respiratory distress in the subject. Of these patients only five had no previous history of asthma, dyspnea, or respiratory distress. Practically all the cases in the table had symptoms in common. In a few minutes after receiving the injection, they were seized with an intense dyspnea followed by edema and urticaria. The action of the heart continued long after respiration had ceased. When recovery followed the collapse, it was slow. When death terminated the reaction only two of the cases lived longer than 10 minutes after receiving the serum. Asthma is a neurosis with no more pathologic lesion than has epilepsy but the term asthma should be dissociated from conditions which are termed asthmatic. It is his opinion that if we could eliminate the dangers of administering serum to an asthmatic, we could cure over 50% of all cases of asthma by antitoxin, but until that is done, it will never be a popular procedure. When it is thought advisable to use any of the curative sera, the doses, subsequent to the initial dose, should follow rapidly rather than to wait a few days after the first administration. The normal serum reaction occurs from the eighth to the thirteenth day after the injection of the first dose. If possible, all the serum the case is to receive should be given before the eighth day.

The future of serum treatment is very promising and we are on the borderland of its full fruition. Since its introduction thousands of lives have been saved and millions of doses have been administered with perfect and satisfactory results. He does not wish to be considered an alarmist; his only purpose being to give a word of caution regarding the use of antitoxin in certain conditions. His conclusions are: The various sera already have a prominent position in the domain of therapeutics and he does not wish to oppose the use of any of them, but it must be understood that there are many problems concerning them which are unsolved and that we are still in the experimental stage of their use. No serum should be used without a well defined object in view and when it is decided that serum is required the case should be carefully considered to see if there exist any contraindications to its use. It is his opinion that if we are called upon to administer any of the sera to a subject who has asthma or any asthmatic condition, hayfever, acute or chronic bronchitis, or who is susceptible to the odor of a horse or stable, or who has suffered from angioneurotic edema, or is neurasthenic, we should inform the patient and the persons interested in the outcome of the case, of its possible dangers before giving it and try to avoid its use.

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Rheumatic Pains: In the *International Clinics*, Vol. 1, series 19, Jas. J. Walsh considers occupations and so-called rheumatic pains. Rheumatism, like charity, may cover a multitude of diagnostic sins. He has found that the most important element in the production of the painful condition is the occupation of the patient. In a certain number of these cases there is often something more than a neurosis, there is an actual neuritis. The reason for the development of the neuritis is that the overwork required of a particular nerve seems to lessen its resistive vitality. The giving of salicylates or of coal-tar products will relieve the pain in certain acute stages but as a rule will do no good. They do not touch the underlying condition at all and usually, by depressive effects, do harm rather than good. It is very common, however, to have these remedies given for long periods to these patients. It is a good rule to say "rather a useless remedy than none," but only on condition that the remedy is sure to produce no harm. We know too little about the coal-tar products to permit their use on this principle and as regards the salicylates, they are too irritating to the stomach and kidneys to be used to any extent. The first and most important thing is to get the patient's confidence and then to reassure him that this is not a rheumatic condition, likely to develop further and involve more groups of muscles and so bring about helplessness. The one drug that he has found effective in most of these cases is strychnin, which he prefers to give in the form of nux vomica. He knows it is easy to be deceived in this matter, but after considerable observation he is much better satisfied with the tincture of nux vomica, given in drop doses, than with the tablet medication. For most of these neurotic conditions, especially in the circulatory system whether they affect the heart at one end or the capillaries at the other, nux vomica will be found a useful drug.

It is difficult to say just what should be the dose. He has always thought that too small doses are given. Some give as low as five drops only of nux vomica and, as this would be only two and one half minims, it is entirely too small. To begin with, in the ordinary person weighing 120 to 140 pounds, at least 15 drops (seven and a half minims) should be given and this should be increased until 15 minims (30 drops) are being taken, three times a day. He has found small doses of nux vomica of value in one condition only and that is in nauseated conditions of the stomach or persistent vomiting in certain neuroses of the stomach. Here drop doses in a teaspoonful of water every half hour or so will give more relief than anything else. In the neurotic conditions the dose to begin with should be 15 drops and if the patient weigh 200 pounds or more it should be at least 25 drops. The dose should be increased one drop every second day until 15 additional drops are taken or until there is some feeling of tension in the muscles.

Drug Reactions: The *Postgraduate* for December (*The Hospital*) gives a summary of some drug reactions in the urine. Copaiba, copaiba resin, cubebs, balsam of Peru, balsam of tolu and other resins and balsams all give a white ring when the nitric acid test for albumin is employed. The possibility of this source of fallacy,

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leading to grave errors in connection with life insurance examinations for example, is obvious. The white ring is due to the precipitation of the resin in the urine by the nitric acid. The ring is less well defined and less closely related to the line of junction between the urine and nitric acid than is that caused by albumin. On adding a few drops of alcohol the coagulum of albumin does not dissolve, whereas that from resin disappears at once. Rhubarb and senna contain chrysophanic acid, which gives the urine a bright yellow-brown color. Santonin causes the urine to have a peculiar yellowish-green color due to the presence of oxysantonins. Salicylic acid, methylsalicylic acid, mesotan, aspirin, sodium salicylate and other preparations containing the salicyl radicle cause the urine to give a deep reddish-brown or reddish-purple reaction with ferric chlorid solution. The main importance of this lies in the fact that it may cause confusion when aceto-acetic (diacetic) acid is being tested for in cases of diabetes mellitus, and so forth. There are two points of distinction between the ferric chlorid reaction due to diacetic acid and that due to salicylates: (1) That the reddish-purple color persists on boiling if it is due to salicylates whereas it is discharged if due to diacetic acid. (2) If the cold urine to which ferric chlorid has been added is shaken up with ether, the red color due to interaction of ferric chlorid and diacetic acid is taken up by the ether and thus extracted, while the red substance produced by the interaction of ferric chlorid and salicylates is insoluble in ether. Carbolic acid, creasote and arbutin, the active principle of uva ursi, may cause the urine to assume a characteristic color that may be anything from pale greenish to dark green, almost black. It is seldom that any difficulty of diagnosis arises because the source of the carbolic acid is at once suspected and traced.

The following drugs may cause the urine to reduce Fehling's solution: chloral, chloral hydrate, butyl chloral hydrate, carbolic acid, salicylic acid and its allies, camphor and the antipyrin series.

Colds: The *New York Medical Journal* for April 10 believes that while coryza is a trivial disease it produces in the aggregate a vast amount of incapacity. Almost any of the etiologic theories is correct as applied to certain cases, incorrect if applied to all. The term influenza or grippe is usually applied without bacteriologic investigation, often when the presence of the true influenza bacillus is altogether improbable. The therapeutics of coryza is highly unsatisfactory. Many physicians have reached a point of complete skepticism regarding general measures or at least have come to share the lay belief that a hot sling or a hot bath is as good as any more elaborate scheme of treatment. Local measures have not proved absolutely satisfactory. Cocain gives almost immediate relief but the relief is transient since the initial constriction of the arterioles is followed by a dilatation so that the symptoms may even recur in an exaggerated degree and the danger of establishing a habit is almost prohibitory. Analogous drugs as atropin are open to similar objections besides the general contraindications to the use of any mydriatic in the case of those compelled to use the eyes for close work. Astringents are also apt to produce unpleasant after effects.

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Alkaline or mineral oil sprays are soothing, sometimes one, sometimes the other appearing preferable. They probably do no harm but on the other hand they do not bring about thoroughly satisfactory results, which is also true of antiseptics of various kinds.

The Pharmacopœia: James M. Anders in the *Monthly Cyclopaedia and Medical Bulletin* for March, asserts that for a considerable period the profession had been abandoning official preparations for untried and too often unethical proprietaries and nostrums in the treatment of disease. Fortunately, however, there has occurred an awakening in a reconstructive movement, having for its purpose the placing of American therapy upon a moral and scientific basis. To this end much would be gained by according to the U. S. Pharmacopœia and National Formulary, their proper place in American therapeutics. There seems to be a widely disseminated professional error to the effect that every new thing in therapeutics exploited by manufacturing druggists or chemists has decided advantages over older tried remedial agents. Nothing has done more in the past to retard the advancement of the art of therapeutics than the exhibition of remedies and preparations, even the composition and physiologic effects of which were unknown to the practising physician. Again, while there are some instances in which the physician may rightfully prescribe combinations of drugs already compounded in the form of pills, tablets or fluid mixtures, it is, as a rule, better and more in accordance with scientific methods to formulate prescriptions at the bedside, using single drugs, however, to meet the indications of individual cases, whenever practicable.

Antitoxin Orally: In the *Journal of Infectious Diseases* for Feb. 18, Chas. J. McClintock and Walter E. King thus present their conclusions as to the oral administration of antitoxins: (1) Toxins and antitoxins when given by the mouth are usually rendered inert by the digestive processes. Their therapeutic or immunizing value is uncertain and not to be relied upon. (2) If digestion is inhibited, which may be readily accomplished by the use of appropriate drugs, toxins and antitoxins are absorbed unchanged and apparently in sufficient quantity and with such uniformity as to warrant the use of this method for therapeutic and immunizing purposes. (3) In treating children with antitoxin by mouth, the following method has given uniform and satisfactory results. One half hour before administering the serum the child is given one glass of one percent sodium bicarbonate solution. When the antitoxin is given there is added to it one minim of fluid extract of opium and from four to 10 minims of saturated solution of salol in chloroform. When possible no food should be given for at least fours before administering the serum. (4) In the 19 children and the hundreds of animals used in these experiments, there was no evidence of any "serum sickness" or anaphylaxis. (5) In their opinion the oral method of administration of antitoxins of tetanus and diphtheria is the preferable one for prophylaxis. (a) On account of the absence of danger and the ease of administration. (b) Because the cost may be very materially lessened.

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(6) The hypodermic method of administering sera for curative purposes is the only one to be recommended unless extensive clinical experience should show that the oral method is equally efficacious. (7) A relatively high degree of immunity may be produced in animals by the oral administration of toxins if the absorption of the same is promoted by such means as we have suggested.

Radium: The *Medical Record* for April 3, states concerning the potentialities of radium as a curative agent, that it has now been employed by the medical profession for a sufficiently long period to warrant the expression of a fairly definite opinion as to its merits from a medical standpoint. At first, as is always the case with novel remedies, exaggerated curative powers were claimed for it and at the present time it would be quite within the bounds of truth to say that the medical world is divided into two camps so far as its being a curative agent is concerned. Among some medical men great skepticism exists as to the healing properties of radium. On the one hand it has been looked upon as a panacea for almost all physical ills and, on the other, noted pathologists have gone so far as to maintain that there is no single disease to which this type of remedy has been applied, in which it also has not been regarded as a failure. Of course both these expressions of opinion err on the side of exaggeration, for while no results have shown that radium is a universal cure all, neither have its remedial properties proved wholly abortive. Cures have been made by radium in cases of rodent ulcer and great hopes were built upon radium in the treatment of cancer. In deepseated cancer it has been of little use and its administration in cases of epithelioma has not always been attended with positive results. The beta rays emitted by radium are said by Treves to have insufficient penetrative power to be of service in the treatment of malignant disease, but for this reason are valuable for skin affections. Pigmented moles, hairy moles, and birth marks are readily amenable to treatment by radium and chronic eczema frequently has been found to yield to the same remedy. The potentialities, then, of radium as a curative agent are partially gauged, but much further knowledge of the subject is required before it would be wise to make dogmatic statements. What is most needed just now is a thorough scientific study of the matter. Nevertheless, the therapeutic employment of radium has hardly advanced beyond the empirical stage. It is known, or at any rate is a matter of common belief among a very large number of the profession, that the material particles ejected from the radium, or the waves set up in the ether, have a beneficent influence upon some diseases and the question is how to estimate the amount of its value.

Psychotherapy: In the *Journal A. M. A.* for March 13, Sydney Kirk states that our influence on a patient's mind begins the moment that the sufferer enters the office. The appearance of the room, of the medical apparatus that it contains and the physician's personality are the first factors which often determine whether or not the confidence of the patient, so essential for success, can be obtained. The

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neurotic individual is usually a keen observer. He watches with the greatest interest the examination by the physician, notes whether this or that organ has been overlooked and whether the investigation is made in a careful or painstaking manner. Next to the personality of the physician he values the influence of the first examination most highly. It must indicate to the patient that his physician takes a genuine interest in his case. The best results in psychotherapy are undoubtedly obtained when the patient is transplanted into new surroundings: for most of the serious and tedious cases such a step is absolutely necessary. For patients who are anemic, emaciated, poorly nourished and for those who suffer from anorexia, hypochondriasis and the various "phobias" a rest cure is often the best thing. Others may do better if sent to the country or the mountains and others will progress most rapidly toward recovery in an institution adapted for the so-called work-cure, where carefully regulated manual labor is prescribed according to the needs of the case. The therapeutic agent, psychotherapy, is most useful in such neuroses as hysteria, neurasthenia and psychastenia, but its usefulness is not limited to such troubles. All of us make use of psychotherapy constantly, often utterly unconsciously, as a palliative in all manner of organic disease. That we have not recognized the importance of psychotherapy has driven a host of sufferers into the hands of laymen, who were willing and more or less capable to make use of a method perfectly legitimate in itself, but on which the medical profession frowned.

Gastric Ulcer: *Merck's Archives* (*Munch. Med. Woch*) for March, quotes Tabora to the effect that in severe cases of ulcer of the stomach atropin is our most reliable drug and in most cases is superior to surgical intervention. The action of atropin is threefold: It reduces the hyperacidity, is antispasmodic and, to a slight degree, anesthetic. The cases selected were all of a severe type, in which operative interference was ordinarily indicated. The method of treatment consisted of an injection of atropin 1 mg morning and evening: in some cases this dose was increased to 3 mg per diem. These injections were continued four to eight or 10 weeks, the patient remaining in bed during the entire period. The drug was always well borne, the only symptom being a moderate degree of dryness of the fauces. Paralysis of the accommodation did not occur. Invariably during the first few days fluids were given only by mouth. Cereals and eggs were gradually added and meat was not given for two months. The subjective symptoms, especially pain, disappeared after the first day and hyperacidity and hypersecretion diminished.

Salt Solution: In the *Journal A. M. A.* for April 17, H. C. Wood, Jr., states that in cases of circulatory weakness due to hemorrhage, shock or other vasomotor conditions, the injection of salt solution is a valuable mode of treatment. When however, the trouble is due to heart failure, the increase in the quantity of fluid means an added strain on the heart and is therefore contraindicated. The use of saline injections in cases of toxemia with the idea of increas-

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ing the rapidity of elimination is founded on an erroneous conception. When a poison is introduced into the system it unites to form new compounds with the cell protoplasm and this molecular union must be broken up before the poison can be eliminated. Salt solution is unable to do this. Experimental studies on the lower animals have demonstrated that salt solution has no specific action in either bacterial or vegetable poisonings. It has, however, a field of usefulness for the relief of certain symptoms such as circulatory failure, occurring in the course of some cases of infectious fevers.

Academy of Medicine of Cleveland

The sixty-fifth regular meeting of the Academy was held at the Cleveland Medical Library, March 19, 1909, the President, W. E. Lower, in the chair.

The report of the previous meeting of the Council, held March 19, 1909, was read by the Secretary. The report was, in part, as follows:

The following were elected to active membership: Edmund C. Konrad and Arnold Minnig.

The following were elected to associate membership: Lewis C. Hopp, pharmacist, and the following attorneys: W. F. Maurer, Albert A. Clay, Harry F. Payer, William Gordon, Charles R. Miller, David P. Bowden, R. A. Wilbur, Alfred Clum, B. A. Gage, Alex. Hadden, Robert M. Calfee, D. C. Westenhaver, P. L. A. Leighley, Samuel J. Kornhauser, C. H. Olds, Dan B. Cull, Wm. A. Carey, R. H. Lee.

The names of the following applicants were ordered published: Wm. R. Boyd, Carl S. McDonald, Sylvan L. Haas, W. B. Rasing, A. E. Bohm, George N. Stewart, Archibald N. Dawson. For associate membership, Charles W. Chestnutt, attorney.

It was voted that the names of the 15 delinquents for 1908 be referred to individual members of the Council that they might in person attempt to collect the arrearage.

It was voted that members who have been seen personally by members of the Council and have not paid their dues by May 1, 1909, will be dropped permanently from membership in the Academy.

It was voted that the Secretary call the attention of members of the Council, who have failed to attend the meetings of that body, to the provision of the by-laws for declaring vacant and refilling their office for failure in the performance of duties.

The Treasurer of the Academy was authorized to comply with the constitutional provision for the payment of dues to the Cleveland Medical Library Association for the year 1909.

It was voted that the reimbursement check applying on the bill of the Buckeye Electric Co. for lighting in the Medical Library, be returned to the Treasurer of the Cleveland Medical Library Association.

It was voted that the constitutional provision for the payment of dues to the Ohio State Medical Association for the year 1909 be complied with by the Treasurer of the Academy.

The following resolution was presented and was referred to the Legislative Committee with power to act.

"Whereas: The present practice of calling medical expert witnesses is unfair and a reflection upon the profession of medicine.

"Therefore be it resolved by the Council of the Academy of Medicine of Cleveland that in cases calling for medical opinion, a list of physicians skilled in the various departments of medicine be prepared and submitted by the Council and from this list the Court will select such names as are not objected to by either side."

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The following were elected delegates to the Ohio State Medical Association meeting to be held in Cincinnati, O., May 5, 6 and 7, 1909: J. E. Cogan, L. W. Ladd, A. J. Skeel, W. B. Laffer, H. B. Ormsby, and W. E. Lower. Alternates, J. M. Moore, T. A. Burke, J. E. Tuckerman, W. E. Bruner, W. H. Humiston and F. S. Clark.

A report of the committee which conferred with the Cleveland Medical Journal committee was received and accepted. The report was: That the Treasurer of the Academy be authorized to pay to the Cleveland Medical Journal Company the sum of $0.75 for each member of the Academy who was in good standing Jan. 1, 1909.

It was voted that the Secretary arrange for a joint meeting of the Sixth District Medical Society and of the Academy of Medicine in November, 1909.

It was voted that the Secretary arrange for a joint meeting with the Academy of Medicine of Toledo and the societies of adjoining counties to be held in the early summer at Cedar Point.

It was voted that I. J. Propper be asked to prefer written charges against a certain member of the Academy against whom he makes complaint, and submit the same to the Council.

A communication was received from G. W. Crile concerning the relations of the profession with the lay press. The Chairman appointed a committee of three, G. W. Crile, W. H. Humiston and W. T. Howard, to confer with the newspapers and work out a practical plan for action.

A communication was received from W. B. Cannon, Professor of Physiology in Harvard University. Medical School, concerning the antivivisection legislation in Ohio. The matter was referred to the Legislative Committee for action.

A communication from Katherine Avery, of the Cleveland Council of Women, concerning a Federal Children's Bureau, was received and referred to the Legislative Committee with power to act.

R. A. Bolt showed a specimen of cystic goiter removed at operation by F. E. Bunts. Clinically there had been a rapid growth occurring in an old chronic goiter. This, together with the friability of the growth, suggested malignancy. He also showed a specimen of sarcoma of the cecum removed at operation by C. A. Hamann who related the clinical history. The patient, a young man of 25, presented a freely movable tumor in the right lower quadrant of the abdomen. The mobility argued against appendicitis while tuberculosis of the cecum seemed the most likely diagnosis. Sarcoma was not diagnosed previous to operation. An annular growth of the cecum involving the mucosa and muscularis was found at operation. A well developed mesocecum explained the mobility and rendered easy the delivery and removal of the growth. Microscopically it proved to be a small round celled sarcoma of the lymphoid type. Sarcoma of the small intestine was very rare, no case of the kind having been noted at the Berlin Pathological Institute from 1859-75. Smoler studied 13 cases among 13,036 autopsies at Prag within 15 years. According to Nothnagel, but 12 cases were found in Vienna from 1882-93. The small intestine was the most frequent seat of lymphosarcoma. In the large intestine it was much rarer, except in the rectum where it occurred as frequently as in the small intestine. Kruger reported 37 cases, occurring in the small intestine in 16; in the cecum and ileum, 1; in the small intestine and colon, 1; and in the rectum, 16. Moynihan reported 40 cases operated upon for sarcoma of the small intestine. The tumor usually involved only the mucosa and muscularis, the serosa being practically free. Carcinoma extended more widely and hence was more usually adherent.

F. E. Bunts presented a specimen of malignancy of the pyloris. The patient, a man aged 51, had had stomach trouble for four years, belching, vomiting, sour stomach, anorexia and constipation. He never felt well unless the stomach was empty and for the past year had vomited every

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night, everything that he had eaten the previous day. There was no hematemesis. The gastric analysis after an Ewald test meal showed: stomach contents 600 c. c., total acidity 19, free HCl 0, lactic acid 0. His weight was 165 lbs. He had lost 55 lbs. in the last four years and seven years previously he had weighed 247 lbs. At operation no enlarged glands were found and hence it was a good case for pylorectomy. This, together with a posterior gastroenterostomy was performed.

The program was as follows:

1. Medical School Inspection in Cleveland, J. H. McHenry (To appear in full in the Journal).

H. G. Sherman in discussing this paper referred to the recent passage of a bill by the Ohio Legislature which provided for the payment of physicians or nurses by the Board of Education and explained how this would go far towards improving the system of school inspection. The Sanitation Committee of the Chamber of Commerce had taken up this question of school inspection long before the School Board had taken any steps in the matter.

J. H. Lowman thought that the best results would be obtained only if the school inspectors gave their exclusive time to this work. A man could not look after more than 2,000 children while here the inspectors have three or four schools with 5,000 or 6,000 children. The question of school strain should be taken up and these instances of neuropathic taint could not be attended to unless more time was devoted to the work. There were other things to be considered besides merely dealing with communicable diseases. Tuberculosis should receive greater attention as it was often difficult to detect in children and a careful examination was required. Teachers should also be subjected to an examination since a tuberculous teacher was a great menace. The work should properly be in the hands of experts who devoted their whole time to the work. They should meet together frequently and consider such additional matters as lighting, ventilation, latrines, etc.

A. R. Baker said that children were given a great deal of unnecessary work. If young children were allowed to play for a longer time they could do the same amount of real work in a much shorter time and would overtake the majority of those who had begun their schooling at an earlier age. The *inspection* of school children was what was needed. The *treatment* should be carried out by the family physicians or in the regular dispensaries.

S. W. Kelly said that he had advocated a plan years ago very similar to the present one. Not only was inspection, i. e., the isolation of contagious diseases, required, but supervision was also needed, i. e. oversight of the various things pertaining to school life such as ventilation, lighting, heating, etc. He had advocated its being under the control of the Board of Education so as to make it part of the physical education of the child. The function of the inspectors should be the prevention of diseases and not the treatment of them. Their work should not interfere with that of the family physician.

N. Rosewater referred to the endorsement some time ago by the Academy of Medicine, of a plan to provide double sessions in the schools. He had investigated the matter and found that the data, upon which this action had been taken, had been erroneous and he was sorry that the Academy had so acted.

L. W. Childs emphasized two points. The great increase in goiter among the girls in the eighth grade and in the high school seemed to him to be due to too hard work. There was a great tendency for these girls to become nervous. The second was the value of the Von Pirquet test in those children whose parents gave permission for its use. The early detection of tuberculosis by this means would be very valuable from a therapeutic standpoint.

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M. Friedrich stated that 26 school inspectors were now at work. At first the law permitted only the inspection for contagious diseases. The hygienic conditions were thoroughly investigated. They found that very often the children were only too glad of an excuse to escape school. Children with scabies were glad to be sent home and if they were not treated in the schools they would not be treated at all, hence the necessity for dispensary work in the schools. The inspectors had had to be trained for their special work and considerable attention had been given to the correct diagnosis of skin diseases. The practical work done in the schools counted for more than anything else in controlling contagious diseases.

L. K. Baker said that the Commission on Education at Washington was prepared to furnish abundant literature upon this subject, including a pamphlet on medical school supervision in Europe. He thought that the men should devote their whole time to this service. They should not only be well qualified but they should be amply paid. All over the country medical men were giving advice, inspecting, etc., and receiving nothing for it.

2. The Method of Differentiating Functional and Genuine Pareses, C. F. Hoover. (To appear in full in the Journal.)

3. Habitual Dislocation of the Patella, with Illustration of an Operation for its Cure, F. E. Bunts.

The patient, a woman aged 38, gave a very good family history. She had been a strong, healthy child at first, but later had a rather severe attack of diphtheria and then had scarlatina, pneumonia and measles which lowered her vitality. In 1882, when 12 years old, their house was struck by lightning and she was severely shocked. One month later, while she was jumping, her left patella became dislocated but soon slipped back of itself.

Later the right patella also became dislocated during her efforts to save herself from falling when the left patella slipped out of place. This happened from 20 to 25 times and was always followed by lameness and swelling. She had several very severe falls owing to this condition, on one occasion falling down stairs and suffering from cerebral concussion. Rest, hot applications, elastic bandages, etc., were tried without much relief. In 1904 the patella would slip out so easily that she could not walk unless she kept her hands upon her knees and the pain in the legs was constant.

The patella would sometimes become dislocated when the patient was lying down with the limbs fully extended. This happened even during slight muscular contraction while under the anesthetic. The dislocation was prone to occur when she stood very straight or quickly straightened the leg.

In April, 1905, both knees were operated upon. A linear incision six inches long was made on the inner side of the knee, through the skin and subcutaneous tissues to the capsule of the joint. A curved incision was then made through the capsule and the edges overlapped and united with mattress sutures while the patella was shoved forcibly inward. The free edge of the overlapped part of the capsule was sutured to the capsule, the wound closed without drainage and a plaster bandage applied for four weeks. The operation was in general the same as the Mayo operation for umbilical hernia. The final result had been only partly satisfactory. The left knee had remained cured, but she had had several attacks of pain in the right knee without dislocation of the patella, resembling that seen in floating cartilage which was sometimes associated with repeated dislocations.

The majority of these cases were considered congenital and should be operated upon early. In this case the condition seemed due to a general defect in development and not to a congenital cause. The various causes commonly given, such as knock-knee, elongated patellar tendon, lax

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capsule and imperfect development of the condyles of the femur, had a distinct influence in perpetuating the trouble. In severe cases mechanical contrivances had not proved satisfactory and operative procedures had been required such as, osteotomy for knock-knee, transplantation of the tibial spine with its attached patellar tendon, shortening the tendon itself or, as was done in this instance, narrowing the capsule. Drawings showing the details of this operation were exhibited.

OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The fortieth regular meeting was held at the Cleveland Medical Library, Friday, March 26, 1909, J. N. Lenker in the chair.

J. E. Cogan presented a case of vernal conjunctivitis in a boy 12 years old. He had had several recurrences, always in the spring, with involvement of both eyes. The conjunctiva of the lids only was involved as in the tarsal form of this affection.

W. I. LeFevre demonstrated a new "eye localizer" and showed several radiographs.

The program was as follows:

(1) Lens Extraction in the Capsule; a Resume with Report and Presentation of a Case, C. C. Stewart. (To appear in full in the Journal.)
Discussed by A. R. Baker, B. L. Millikin and W. E. Bruner.

(2) Two Cases of Locomotor Ataxia with Abductor Paralysis of the Vocal Cords, W. B. Chamberlin. (Appearing in full on page 281.)
Discussed by W. E. Bruner, J. N. Lenker and A. R. Baker.

EXPERIMENTAL MEDICINE SECTION.

The forty-third regular meeting was held Friday, April 2, 1909, at The Western Reserve Medical College.

The program was as follows:

1. (a) Studies in the Biology of Tumor Cells, Illustrated by the Aid of the Projectoscope, (b) Biology of Cells in General, O. T. Schultz.
2. Biology of Tumor Cells, W. T. Howard.

O. T. Schultz reported the results of his own work upon the biology of tumor cells and reviewed certain recent advances in general cellular biology, the application of which seemed to offer some explanation for the continued proliferation of tumors. These facts dealt chiefly with structure, function, differentiation, growth, the relationship of nucleus and cytoplasm, the depression resulting when this relationship became abnormal, the regulatory processes by means of which cells overcame depression, and the physiologic degeneration resulting from continued upset of the nucleus-plasma balance. Although cells might vary structurally, variations from the simple alveolar nature of the protoplasm were the results of specialized cellular function, and morphologic differentiation was the expression of functional specialization. Neither nucleus nor cytoplasm could be considered the chief seat of cellular activity, but the two were mutually interdependent upon each other. Between the two there existed for every species of cell a definite volume relationship—the nucleus-plasma relationship. In cellular growth the cytoplasm increased regularly in amount and tended to outgrow the nucleus. When the disproportion between nucleus and cytoplasm volume reached its maximum, a sudden rapid increase in the size of the nucleus occurred (divisional growth), division of the cell followed and the normal nucleus-plasma relationship was restored. Because of the differences in cytoplasmic and nuclear growth there was a constant tendency toward upset of the nucleus-plasma balance. In normal cells serious upset was prevented by division and function. After rapidly repeated divisions, hypernutrition,

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starvation, changes in temperature and other causes the nucleus-plasma relationship became seriously upset to the advantage of the nucleus. In the attempt to restore a normal balance the cell made use of certain processes, the most important of which were nuclear extrusion and destruction, chromatin resorption, chromatin extrusion (chromidiosis) and conjugation. By means of these regulatory processes the cell got rid of the excessive amount of chromatin. When this did not happen the cell underwent physiologic degeneration which ended in death. In hyperactive cells an upset in favor of the cytoplasm might occur, because chromatin was used up more rapidly than it could be formed. Such an upset might also lead to cell death. In the varying relationships of the nucleus to the cytoplasm the nucleolar substance played an important part. By it the chromatin was visualized, and through it the chromatin entered into the physiologic activities of the cell.

W. T. Howard showed the application of this biologic knowledge to tumor cells and reported the results of his own investigations. Because growth was one of the most fundamental properties of tumors they had been classified as those of slow growth, of moderately rapid growth and of rapid growth. In metazoan tissue cells the rate of division was sufficient to replace cells worn out by function. When larger numbers of cells were injured the divisional rate might increase to such an extent as to lead to a filling in of the defect, but when regeneration or restoration was complete division ceased. When the incitant to division acted more continuously (as in infection by B. tuberculosis) the fixed cells multiplied at a more than normal rate as long as the incitant acted. The greater the degree of functional and morphological differentiation, the less actively did cells divide. In tumor proliferation the degree of differentiation varied, and the incitants to division might also vary in degree and amount. Differentiation acted as a regulatory process, and when the power of differentiation became interfered with, tumor cells went into depression. In tumors, then, in which the incitants to division were of equal intensity and which had equal powers of differentiation the further history of the tumors would depend upon the regulatory processes which the cells could adopt to overcome depression. In benign tumors differentiation was good and growth very slow. Slowly growing malignant tumors also might show considerable differentiation, but evidences of depression due to nucleus-plasma upset occurred (nuclear hyperchromatism and hypertrophy, nuclear and cytoplasmic degenerations). The cells could not adopt regulatory mechanisms sufficient to overcome the depression. Tumors of moderately rapid growth might begin with a slow rate of growth and then grow somewhat more rapidly when regulatory processes could partially overcome depression, or they might grow with a moderately rapid rate from the beginning. In such tumors evidences of depression were marked and cell mortality was great. The depression was overcome, however, to an extent sufficient to permit a moderate rate of increase. Depression was overcome chiefly by amitosis and nuclear budding. In certain tumors of this group unusual and most interesting findings had been the participation of the karyosome in amitosis and budding, and the occurrence of mitosis in mother nuclei which had reduced their chromatin by budding. Tumors of rapid growth might also be derived from more slowly growing ones by the adoption of more active modes of regulation, or the growth rate might be so rapid from the beginning that large tumor masses and many metastases were formed in a short time. Such tumors used all the known methods of regulation, although chromidiosis seemed to be the most active and important. The formation of pigment from the extruded chromatin had been noted. Recent advances in cellular biology offered help in explaining the continued proliferation so characteristic of tumor cells. Both papers were fully illustrated by means of the projectoscope.

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CLINICAL AND PATHOLOGICAL SECTION.

The fifty-ninth regular meeting was held Friday, April 9, 1909, at the Cleveland Medical Library, W. B. Laffer in the chair.

W. E. Lower showed a kidney which had been removed for septic infarcts due to hematogenous infection. Brewer of New York had recently called special attention to this condition, saying that it was difficult to diagnose, and that out of nine of his own cases only one was recognized as an infection of the kidney. This patient had had symptoms of influenza, with sudden onset and chills. Red blood-cells and leukocytes were found in the urine. The ureters were catheterized and the trouble located in this kidney. There were three types of this disease, moderate, mild and severe. In the severe cases operation was required or the affection would prove fatal.

W. H. Weir asked as to the occurrence of red blood-cells in the urine in this condition and referred to a case of complete infarction of the kidney that he had seen, in which no red blood-cells were found in the urine.

J. J. Thomas showed a mixed, spindle and small round celled sarcoma of the kidney removed fron a child 23 months old. The abdomen had been tense and the large tumor could be felt very easily. Without an anesthetic it resembled an enlarged spleen, but was nodular. The urine was normal, hemoglobin 65%, and there was no emaciation. A diagnosis of sarcoma was made and confirmed at operation. The growth weighed 680 gm.

R. A. Bolt had seen a similar case in a child one year old, a growth about twice the size of this specimen. One year later this child was perfectly well. The pathology of renal tumors was interesting. The majority were congenital and many resembled teratomata e. g., rhabdomyosarcomata and hypernephomata.

H. O. Feiss showed radiographs and plaster casts of a deformed foot both before and after operation. The patient, a man aged 33, had had a fracture of the tibia and fibula 10 years previously. Faulty union had occurred, as shown by the Xray. An osteotomy of the tibia and removal of a wedge from the fibula permitted a satisfactory correction of the deformity. A plaster cast was applied and the result was very satisfactory. Some shortening, of course, occurred, but this was overcome by a high heel.

The program was as follows:

1. Exudative Diathesis with Demonstration of Cases, H. J. Gerstenberger. (To appear in full in the Journal.)

J. J. Thomas, in the discussion, asked whether the geographical tongue, aside from the other symptoms, could be considered pathognomonic of exudative diathesis. He had seen one case with this appearance of the tongue, but with no other symptoms. Another case, in which the parents also had this diathesis, had a number of symptoms of the condition but the tongue was normal. Children with this affection were often sent to the dermatologist for eczema instead of to the pediatrist, to whom they belonged.

H. J. Gerstenberger, in reply, said that he had seen 12 cases with geographical tongue and in every one other signs of the diathesis could be found. Czerny calls it a most characteristic symptom, always present at some stage or other of the disease.

2. Report of a Case of Thrombosis of the Cerebral Sinuses and Veins, J. J. Thomas. (To appear in full in the Journal.)

J. B. Tuckerman asked whether there had been any evidence of endocarditis during life.

C. E. Briggs asked if the eyes had been examined.

J. J. Thomas in reply stated that no endocarditis could be diagnosed before death. The eyes had not been examined, although this had been

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considered. It seemed unnecessary as the diagnosis seemed clear without it. The swelling of the veins over the forehead was explained by the sinus thrombosis found at autopsy.

3. Tonsil Enucleation with the Capsule and Description of the Technic, W. B. Chamberlin. (To appear in full in the Journal.)

C. E. Briggs in the discussion said that the complete enucleation seemed to him the wisest procedure since the trouble often recurred after partial removal. The operation was not difficult if one had had experience.

M. Metzenbaum showed a pair of scissors, the points of which, when closed, made a useful blunt dissector and were very convenient in tonsil enucleation.

W. I. LeFevre asked if the infiltration of the tonsil with distilled water was effectual in producing anesthesia.

W. B. Chamberlin in conclusion said that he had not tried infiltration with distilled water as a local anesthetic for the tonsil. He believed quinine solution had been tried in this way but understood it was of little use.

Book Reviews

Hemorrhage and Transfusion, an Experimental and Clinical Research by Geo. W. Crile, A. M., M. D., Professor of Clinical Surgery Western Reserve Medical College, Visiting Surgeon to the Private Ward Service, Lakeside Hospital, Cleveland, Ohio. D. Appleton & Company, New York and London, 1909.

The early chapters of this book are devoted to experimental studies on the general phenomena and treatment of acute hemorrhage in animals. The detailed protocols of 47 experiments on dogs are given with the conclusions drawn therefrom. The concluding chapters of the first part of the book take up the clinical study of acute hemorrhage from various causes, the comparison between hemorrhage and shock and the treatment for both.

In part II the author discusses transfusion, giving several chapters on experimental transfusion of animals and several chapters on direct transfusion in clinical work. The details of the technic of direct transfusion, both by suture and canula are carefully given and well illustrated.

A chapter is devoted to hemolysis and its relation to the transfusion of similar blood with the technic of making hemolysis tests and finally follow several chapters with an enumeration of the various diseases in which transfusion has been tried and the conclusions to be drawn from them. The book is full of very interesting matter and should be read carefully by any who contemplate using direct transfusion as a therapeutic measure.

Textbook of Embryology, by Frederick Randolph Bailey, A. M., M. D., Adjunct Professor of Histology and Embryology, College of Physicians and Surgeons (Medical Department of Columbia University), and Adam Marion Miller, A. M., Instructor in Histology and Embryology, College of Physicians and Surgeons (Medical Department of Columbia University). With 515 illustrations and 672 pages. Cloth, price $4.50, net. William Wood & Company, New York.

In the last ten years there have appeared several textbooks of human embryology by American authors, but none have been very satisfactory.

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Two years ago there was published, under the editorship of Oscar Hertwig, a very extensive Handbuch by a group of German authors, bringing together the knowledge on the various parts of the subject of embryology.

In the past decade there has been active research on embryological problems among American anatomists, and the greater part of this research has been published in the *American Journal of Anatomy,* a journal which equals in content and tone any on anatomical subjects in the world.

It is, therefore, very gratifying to note the appearance of the textbook of embryology by Bailey and Miller in which the contents of Hertwig's Handbuch and also all the work of the American school of anatomists is taken into consideration and the subject is brought up to date. No textbook on the subject since that of Kollmann—published in German in 1898—has approached this new work in completeness and accuracy. The books in English that we have are either fragmentary or have lacked, in their succeeding editions, the revision necessary to bring them up to date.

This book has several features that make it of great value to the practitioner who wishes to know of the advance in embryology in recent years and also to have a good general knowledge of the subject.

The arrangement of the book is logical, and the reviewer, after reading several chapters entire, has failed to find any important inaccuracies. The illustrations are largely from researches published in various journals and many of the excellent figures are not available in any other textbook.

A very important feature is the adoption of the newer Latin nomenclature of the German Anatomical Association, which is now in use by all European anatomists and is rapidly coming into usage in America. When terms are greatly changed, synonyms are given. Of especial value is the discarding of the old meaningless terms and the adoption of definite, directive terms. Some of these changes are: dorsal instead of posterior (posterior in the old usage is a gross inaccuracy); ventral for anterior; anterior for superior; posterior for inferior. These terms take the proper view of the morphological position of the human body, namely, in the quadruped position rather than upright. The old method made it impossible to accurately compare man with any other mammals. The adoption of the adverbs; craniad (better cephalad), caudad, mediad (better mesiad), laterad, etc., meaning *toward* the head, tail, midline, etc., is a distinct advance. These terms have been in use in journal articles for some time but have not before been introduced in textbooks. They all tend to accuracy of expression, which has in the past been very lax. Unfortunately, the indefinite and inaccurate terms, below, above, forward, behind, etc., have not been thoroughly expunged.

In connection with each chapter is a short reference bibliography which will enable the reader who is interested in any particular division of the subject to locate the most recent work.

Following each chapter is a consideration of the teratology of the group of organs discussed, giving the embryological explanations of the more common anomalies. This feature is of great value to the practitioner.

From a typographical standpoint the book is excellent. The type is clear, paper good and the impressions of most of the illustrations are satisfactory. There are some typographical errors that have escaped the proof reader, but no more than is to be expected in a first edition.

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It seems to the reviewer that this book is likely to be used as a text for students in all those better medical schools in which a good course in embryology is offered.

It certainly will be a valuable addition to the library of any practitioner.

Epoch-making Contributions to Medicine, Surgery, and the Allied Sciences; Being reprints of those communications which first conveyed Epoch-making observations to the scientific world, together with biographical sketches of the observers. Collected by C. M. B. Camac, M. D., of New York City. Octavo of 435 pages, with portraits. W. B. Saunders Company, 1909. Artistically bound, $4.00 net.

"Some of the errors of to-day are the result of disregarding or misquoting the facts clearly set forth in these original treatises"—to quote from Dr. Camac's Introduction—gives the purpose of this book. It is a plea for the teacher and student to carry into medicine the same preciseness that is required in other branches of science by becoming familiar with the original teachings of great authorities. For example, to-day many infections could be avoided if Jenner's technic, as he described it a century ago, were more closely followed. Other great principles, such as the circulation of the blood and auscultation have never been stated more clearly or definitely than when they were originally made known. Such writings as bear most directly on seven important discoveries the author has rescued from inaccessible volumes and arranged concisely and added short bibliographies of the discoverers. The book is excellently put together and should be a valuable addition to every library and reference room. It is hoped that other volumes are to follow.

American Practice of Surgery. A Complete System by Representative Surgeons of the United States and Canada. Edited by Joseph Decatur Bryant, M. D., and Albert Henry Buck, M. D. To be published in Eight Royal Octavo Volumes. New York: Wm. Wood & Co. Volume V, 973 pages, illustrated by 452 line and half-tone engravings in the text and by eight full-page plates by chromo-lithography and other processes. (Subscription.)

Nearly one-half of this volume is devoted to a discussion of Surgical Affections of the Head, by Edward Archibald of Montreal. This chapter is thoroughly up-to-date and the more recent experimental work of Cushing, Leonard Hill and others has been carefully reviewed. The great strides in the surgical possibilities in this field are clearly indicated. Surgery of the Cranial Nerves, by Chas. H. Frazier of Philadelphia, follows. Special attention is given to operative procedures upon the trigeminal nerve and the Gasserian ganglion and the vastly improved results from the latter operation are pointed out. Nerve anastomoses of the facial with the hypoglossal or spinal accessory nerves are well discussed.

Surgical Diseases, Certain Abnormalities and Wounds of the Face, by G. B. DeNancrède of Ann Arbor, is satisfactorily dealt with and is followed by a special chapter on Hare Lip and Cleft Palate by Jas. S. Stone of Boston. Surgical Diseases and Wounds of the Eye, by Geo. C. Harlan of Philadelphia, occupies 110 pages and is quite as thoroughly discussed as is necessary in a system on General Surgery.

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Robert Lewis, Jr., of New York, writes the chapter on Surgical Diseases and Wounds of the Ear, particular attention being given to the simple and radical mastoid operations. Two additional chapters on complications of diseases of the ear follow. Richards of New York, contributes a very exhaustive article on Sinus Thrombosis of Otitic Origin and Suppurative Disease of the Labyrinth, the numerous illustrations being very clear and helpful in explaining the details of this exceeding technical operation. Henry O. Reik of Baltimore writes on Pyogenic Diseases of the Brain of Otitic Origin. Surgical Diseases and Wounds of the Pharynx is by Chas. H. Knight of New York, and describes the operations for the removal of adenoids and tonsils. In the latter he advises the use of a guillotine and a tonsil punch for removing any remnants; the radical dissection is not described. Jas. E. Newcomb of New York, in a chapter on Surgical Diseases and Wounds of the Larynx and Trachea, pays special attention to laryngeal intubation and bronchoscopy. Tracheotomy is well described, but as this is a work on general surgery and the operation has, at times, to be performed by an inexperienced surgeon, some illustrations of the operation would seem desirable. A chapter on Laryngectomy, by Frank Hartley of New York, concludes this volume which is most satisfactory in every way and quite equal to the preceding ones.

The Theory and Practice of Infant Feeding, with Notes on Development, by Henry Dwight Chapin, A.M., M.D., Professor of Diseases of Children at the New York Postgraduate Medical School and Hospital; Attending Physician to the Postgraduate, Willard Parker and Riverside Hospitals; Consulting Physician to the Randall's Island Hospital and to St. Agnes Hospital, White Plains. Third edition, revised, with numerous illustrations. $2.25 net. William Wood & Co., New York, 1909.

In the first part of the book the author points out that man, the horse, the dog, cattle, etc., have anatomically and physiologically different digestive tracts; that these differences correspond with those existing in the food—i. e., in milk,—of the individual species. In other words, the digestive tracts have been adapted to the peculiar character of the foods, which correspond in their composition to the needs of the individual species. That, therefore, there is but one normal food for each species, namely the milk secreted by the breast of the mother for the offspring. Cow's milk is not, therefore, and never will be a food of equal value to the human infant, as is the milk from the breast of a woman. The most striking difference in the eyes of the author between cow's milk and woman's milk is the high percent of casein in the former and the character of the curd. Upon these two factors he lays the greatest blame for the troubles arising from the artificial feeding with cow's milk.

Under the heading of "Raw Food Material," he gives some good practical information regarding the production of suitable milk for infants.

Part III, however, which treats of practical feeding and which constitutes the most important part of the work, is full of practically nothing but disappointments. Difficult proteid digestion, two-hour feeding, top-milk modification, the changing of the diet of the mother to increase or decrease either fats or proteids or both in her milk, the description of

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summer diarrhea, etc., show, as can also be seen from the references cited, that practically all of the important scientific work of the last five or 10 years, especially that done by the Berlin and Breslau schools, has not been considered by the author. The book therefore, although just published, is old. In the hands of students and practitioners it will do no good but much harm; to the pediatrician who follows more than American literature it will be a loss of time to read it. It cannot be recommended.

Medical News

F. W. Vincent, Secretary of the Antituberculosis League of Cleveland, leaves for Manilla, P. I., during this month to assume the duties of Medical Inspector in the U. S. Civil Service.

The St. Alexis Hospital Alumni Association met at the Hollenden April 1, 1909. The following program was presented: 1. (a) Monoplegia Due to Dog Bite, Followed by Pasteur Treatment. (b) Dissecting Aneurism, A. P. Scully. 2. Vienna Clinics, Leo Wolfenstein.

The Charity Hospital Medical Society met Wednesday evening, April 14, 1909. The program was as follows: (a) Case of Postoperative Insanity. (b) Femoral Aneurism, Ligation of External Iliac Artery; B. S. McClintick. 2. Practical Application of Vaccine Therapy; C. S. McDonald.

The Lakeside Hospital Medical Society held its thirty-seventh monthly meeting Wednesday, April 28. The program was as follows: 1. Presentation of Three Fracture Cases, C. E. Briggs. 2. Presentation of a Case of Dystrophia Musculorum, R. Dexter. 3. Presentation of a Case of Purpura with Abdominal Symptoms, L. Pomeroy. 4. Presentation of Pathologic Specimens: Bullet Wound of Brain, Two Cases of Cerebral Hemorrhage, Thoratic Aneurism with Erosion of Cervical Vertebrae, Gliosarcoma of Brain, Perforative Diverticulitis of the Colon.

The annual staff meeting and election of officers of the St. Clair Hospital was held March 25, 1909. There was a full attendance and business of great importance was transacted. The following officers were elected for the ensuing year: A. F. House, President; Robert Bailey, Vice-President; J. M. Moore, Secretary. Luncheon was served by the matron, Mrs. Altringer.

The graduating exercises of the first class of nurses of St. Luke's Hospital was held at Epworth Memorial Church, Friday evening, April 30. Nine nurses received their diplomas.

The Governors of the New York Skin and Cancer Hospital announce that William Seaman Bainbridge will give the fifth annual lecture on Malignant Disease, with the presentation of patients, in the outpatient hall of the hospital on Wednesday afternoon, May 12, 1909, at 4:15 o'clock. The lecture will be free to the medical profession.

The twelfth annual meeting of the American Gastro-Enterological Association will be held at the Hotel Windsor, Atlantic City, New Jersey, June 7 and 8, 1909. A large number of very interesting papers by representative men appear upon the preliminary program which has been just issued.

The Modern Medicine Publishing Company announces for early publication a work on Phototherapy entitled Light Therapeutics, a Practical Manual: Physics, Physiologic Effects, Technic, Therapeutics, Clinical Applications, etc., by J. H. Kellogg, Superintendent of the Battle Creek Sanitarium.

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The Surgical General of the Army announces that preliminary examinations for appointment of first lieutenants in the Medical Corps of the Army will be held on July 12, 1909, at points to be hereafter designated.

Full information concerning the examination can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be *between* 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training or its equivalent in practice.

The United States Civil Service Commission announces an examination on June 16, 1909, to secure eligibles from which to make certification to fill at least two vacancies in the position of medical interne (male), Government Hospital for the Insane, Washington, D. C., at $600 per annum each, with maintenance, and vacancies requiring similar qualifications as they may occur in that hospital.

Applicants should at once apply to the United States Civil Service Commission, Washington, D. C., for application Form 1312. No application will be accepted unless properly executed and filed with the Commission at Washington.

The thirty-fifth annual report of the Cincinnati Sanitarium has recently been issued, together with the reprint of an interesting address entitled "The Doctor in Court" by the Medical Director, Dr. F. W. Langdon. The report indicates both the amount as well as the quality of the work accomplished by this institution, the announcement of which will be found in our columns.

At the Cleveland Medical Library on April 17 an exhibition of Jiu Jitsu by an expert was given for the entertainment of the members of the Association.

Deaths

Lester H. Luse, Willoughby, Ohio, died April 1, aged 71.
J. Harvey Guthrie, Urichsville, Ohio, died March 14, aged 37.
William Clay Frew, Coshocton, Ohio, died April 2, aged 64.
John H. Brooke, Newark, Ohio, died April 2, aged 78.
Phineas Sanborn Conner, Cincinnati, Ohio, died March 26, aged 69.
Thomas J. Reed, Massillon, Ohio, died March 27, aged 70.
Frederick P. Dorschug, Cincinnati, Ohio, died March 25, aged 48.
William L. Pinkerton, Galloway, Ohio, died Dec. 6, 1908, aged 68.
Frank J. Latsjaw, Toledo, Ohio, died March 11, aged 31.
William H. Hooper, Waverly, Ohio, died March 11, aged 69.
Morris J. Hawkins, Brunswick, Ohio, died March 11, aged 74.
Oscar North Tindall, Toledo, Ohio, died March 22, aged 66.
Allen Vinton Smith, Canton, Ohio, died April 10, aged 53.
Benjamin Franklin Miesse, Chillicothe, Ohio, died April 3, aged 68.
David A. Williams, Franklin, Ohio, died April 9, aged 49.
John A. Rogers, Kenton, Ohio, died March 16, aged 89.
Arthur P. Crafts, of this city, died April 19, aged 43.
Charles W. Power, Wooster, Ohio, died March 20, aged 49.
John R. Wampler, Dayton, Ohio, died April 13, aged 59.
Joseph S. Boone, Powhatan, Ohio, died April 2, aged 69.

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See page 20.

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The Cleveland Medical Journal

VOL VIII JUNE, 1909 No 6

The Treatment of Chronic Intestinal Auto-Intoxication.

By F. FORCHHEIMER, M. D., Cincinnati

It is necessary, before attempting to discuss the subject of this paper, to come to a definite conception of what is meant by the process called intestinal autointoxication. This I attempted to do in a clinical paper written in 1907 (Chronic Intestinal Auto-intoxication. *Am. Jounal of the Medical Sciences,* 1907, p. 70), in which I give the following definition: "That condition in which toxins formed in the intestines are absorbed by the organism in which they are produced. Strictly speaking, only that process should be called autointoxication which is caused by toxic bodies resulting from metabolism and not due to any exogenous cause, such as bacterial activity." As a matter of fact, the most notable recent contribution to the study of the subject to which I wish to call your attention was made by Herter under the title of infection of the digestive tract, (The Common Bacterial Infections of the Digestive Tract, 1907). This term, infection, can certainly not be objected to when applied to lower forms of life which are pathogenic; it is doubtful, however, if we should apply it to the condition in the intestine when we are dealing largely with saprophytes, and when the bacteria themselves only do harm to the human being by toxic bodies which are produced as the result of their metabolic activity. As bacteria *per se,* they do no harm, only as they are present in too large or small quantities; they never enter the circulation and never directly produce pathologic changes. Bacillus coli commune sometimes becomes pathologic, for one reason or another it may get into other tissues, and then it produces an infection, but it is still doubtful if this ever happens as long as the bacterium is confined within the intestine.

Read before the Academy of Medicine of Cleveland, April 16, 1909.

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So that it would seem that infection is very rare, if it occurs at all. But, however we may decide, whether we choose the term infection or intoxication, and it is more than likely that both conditions are found as including the clinical manifestations, the treatment of which we wish to study; for the present, the greatest number of authors, German, French, Italian and American, employ the term intoxication and autointoxication because the toxic body is found in the intestines, either as the result of bacterial or metabolic processes.

Because of the absence of absolute scientific evidence, the subject of chronic intestinal autointoxication must be largely looked upon as a clinical term. Herter has done more towards putting the subject upon a purely scientific basis than was ever done before and, in this way, has succeeded in securing recognition for chronic intestinal autointoxication as a morbid entity, which has not been heretofore attained. He has, however, limited himself to the bacterial processes and has not considered metabolism which, it must be granted, formerly figured too largely as an etiological factor.

From purely clinical evidences I have made the following composite picture of chronic intestinal autointoxication as a result of the analysis of 77 cases, (l. c.).

I. Riggs' disease was present in 85% of all the cases, 70% had some form of stomach trouble, 94% had some manifestation of bowel trouble.

II. The urine was found to contain indican in abnomal quantities in 87% of all the cases; calcium oxalate in 50%, uric acid in 25%, red blood corpuscles 50%; cylindroids were found in about 17%, casts in 32%, albumin in 9%.

III. In women, nearly one-half were affected by some form of abnormal menstruation.

IV. Nervous symptoms were present in about 80% of all the cases.

V. Cardiovascular conditions were found in 74%; neuroses, myocarditis, arteriosclerosis, etc.

VI. Locomotor apparatus symptoms occurred in 62%, so-called gouty joints, hypertrophic arthritis, and, especially, muscular symptoms.

VII. Skin lesions were found in 28%.

In a large number of cases the diagnosis of intestinal autointoxication could, it seems to me, be based upon this clinical

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picture, as presenting the most common form of the disease. I wish to state emphatically that this does not include all the forms of intestinal autointoxication, but those that result from pancreatic digestion of nuclein, and from putrid effects upon albumin in the intestine. In either instance the deleterious results depend upon the condition of the gastro-intestinal tract, the quality, and possibly the quantity, of food introduced into the intestine, and, finally, the functional activity of the pancreas and the liver. The rarer forms of intestinal autointoxication, of which we as yet know little, such as fat intoxication in children which are fed improperly, intoxications from hepatic or renal insufficiencies and others, will not receive consideration here.

For therapeutic purposes the condition of the gastro-intestinal tract and the food are paramount, next to this, in importance come the kidneys and the liver, and then the effect of internal secretion upon autointoxication. Symptomatic treatment is as important here as elsewhere, but of necessity it can only be superficially discussed here.

It is more than likely that derangement of the stomach leads to bowel troubles which are followed by autointoxication. The following conditions in the stomach are of importance in causing entrance of lower forms of life into the bowels and causing alteration in digestive processes, either of which may lead to the production of symptoms; diminution of HCl, on account of its effects upon lower forms of life; motor insufficiency of the stomach because bacteria develop in stagnating food or, most actively, a combination of both, (Krehl; Pathologische Physiologie; 1906). It is probable that the introduction of large quantities of bacteria into the stomach may also affect the flora of the intestine, notwithstanding the presence there of normal HCl and normal motility, as it is well known that the whole bolus may not come in contact with the HCl. All these conditions should receive proper treatment. A great many stomach conditions are, however, the result and not the cause of autointoxication; among these the following should be considered: many of the ordinary catarrhs or dyspepsias, hyperchlorhydria and the neuroses.

In the intestine the conditions are very complex; innervation, the condition of the intestine itself or of its contents—one or any combination of these causes should be considered. Under the term of innervation all those abnormalities should be looked for that cause relative or absolute constipation. By relative con-

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stipation I refer to that form in which the patient has a stool every day, or even loose bowels, and yet the bowel is never empty. In absolute constipation the patient does not have a stool daily and the bowels are never empty. Constipation always produces retention of fecal material and this favors autointoxication in several ways. The toxic substances are retained longer and therefore more of them are absorbed. In the case of bacterial origin of these toxic substances, when the bacteria are kept in motion they cannot develop to the same extent as when they are at rest; this is seen in the relative absence of lower forms of life in the small intestine, through which they pass normally in two hours, as compared with their great numbers in the large intestine where they frequently remain for from 24 to 40 hours or even longer. When, then, there is constipation, both production and absorption of toxins may be increased.

There are many nervous causes of constipation, among which may be accepted psychical influences, abnormal general innervation and nerve habit. It is probable that changes in the ganglia of the plexuses of Auerbach and Meissner may also lead to constipation, but, for therapeutic purposes, except a possible change in their blood supply by mechano-therapy, or gymnastics, they need rarely be considered. The other forms of nerve constipation should be treated by suggestive methods, and it is strange that this is so frequently neglected. This is of the utmost importance, as most of these patients are relieved by the various modes of treatment which are now in the hands of practitioners who know little or nothing of medicine, methods which are now so much in evidence. Many of these cannot be employed by the conscientious physician, but he can and should apply his own suggestive measures whether they act directly upon the mind of the patient or are indirectly applied as drugs, exercises or what not. It is certain from what has been said that sufficient evacuation of the bowels is a *conditio sine qua non* for the relief of intestinal intoxication; therefore, we are justified in making any justifiable effort to accomplish this. The diet which will be referred to later on should also be directed to this end. The prolonged use of purgatives should not be countenanced as a general proposition; if they are too weak, they do no good; if too strong, they irritate and then add to our troubles. But, in a certain number of cases, we cannot do without them; the mineral waters, the salines, the vegetable laxatives; yet the other measures to be applied make it

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possible, as the treatment continues, to lessen their dose and, finally, to be able to discard them altogether. In those cases in which there is bacterial autointoxication, the increase in indican and indolacetic acid in the urine and the fullness of the bowel upon examination are an index as to the necessity of more liberal purgation. Indeed, many of these patients are able to tell from their symptoms whether the urine is worse and purgation is required. Irrigation of the colon, with a normal salt solution, should be used daily only in the beginning of the treatment, and then for a short period of time, as it may be followed by atony and dilatation of the colon. After the bowels evacuate themselves spontaneously every day, then comes a period which lasts a long time in which indican and indolacetic acid increase from time to time so as to produce symptoms, then irrigation of the colon may be again resorted to or a dose of castor oil be given. When, as happens not infrequently, simple irrigation is not satisfactory, I order an injection of from one-half to one pint of olive oil into the colon before going to bed which is allowed to remain over night to be washed out the next morning by ordinary irrigation.

In many patients, in all of those in which the condition has lasted for a long time, there are organic changes in the intestinal wall. Most frequently we find hypertrophic or atrophic changes in the colon; these should be treated with mechanicotherapy, or massage. Massage is the best when properly applied, but the physician should give directions where it should be applied. It is my custom to mark the places which should be treated and direct how the massage should be done. Before this, however, the colon should be thoroughly cleansed out, when, as a rule, it is not difficult to determine where the treatment should be applied. When it is impossible to procure a good operator, and this is frequently the case, electric massage should be applied by the physician. Indeed, the best results are obtained in these cases when the physician himself applies manual massage and we may hope that, as it is abroad, physicians will eventually find it necessary not only to study, but also to practice this valuable therapeutic procedure.

All those conditions which prevent normal peristalsis should be looked for and carefully treated; I refer especially to peritonitis, chronic enteritis, obstructive conditions from within or without the intestines, and chronic appendicitis. Patients with

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fibroid tumors of the uterus usually present the evidences of intestinal autointoxication; in a number of cases I have seen it in hernias. In the 77 cases referred to before 10 had appendicitis, five were operated upon and with the removal of the appendix the symptoms of autointoxication disappeared. The change produced in anatomical relation of the organs in enteroptosis was found sufficient in three cases to produce autointoxication. At all events, the causes of constipation should be looked for, before prescribing the usual routine remedies; unfortunately, in a small number of cases they cannot be detected.

For the contents of the intestines, the food should first be considered, as by its control we are not only enabled to regulate the bowels, but also to lessen intoxication. The fact is frequently overlooked that the intestinal contents are the normal irritants to intestinal peristalsis. If we give too small a quantity of food, not enough is left after digestion has been completed to produce this normal irritation. This is often found in women who, for one reason or another, not infrequently a cosmetic one, have placed themselves upon a diet. But physicians are often to blame when they prescribe diet for an abnormal digestive or metabolic condition and forget the patient. It is not an uncommon experience in practise, that when the quantity of food is increased, constipation is relieved and certainly the local and general conditions of the patient are improved. To determine this question, caloric computations are valuable. The quality of the food should also be so arranged that enough undigested material is left to produce peristalsis. For this purpose we usually rely upon the cellulose contents of the food, which is relatively indigestible and therefore gives bulk as well as irritability to the contents of the colon. The digestion of the individual should also be taken into consideration; aside from individual peculiarities, so-called idiosyncrasies, it is not difficult to establish which classes of food can be digested without disturbances. The one great exception is found in the patient in whom digestion is carried on by the brain and not by the gastro-intestinal tract—he is a veritable *crux medicorum!*

It is much more difficult to determine what kinds of food are adapted to prevent the formation of toxic bodies. For the great majority of cases it will be found that albumin and nuclein should be avoided as much as possible; albumin, except that from milk, or vegetables and possibly eggs, because it is affected by

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the causes of intestinal putridity and nuclein as the alloxuric bodies, including uric acid, are formed from it. It is interesting to note here, that oxalic acid is so frequently found in the urine of patients with intestinal autointoxication (50%). It is probably a derivative of uric acid and therefore of diagnostic importance.

In considering these principles, it is not difficult to make a diet list for the individual which covers both putrefactive and nucleinic intoxication, which are usually found combined in practise, and which also prevents constipation. When atrophic changes dominate in the intestine, the food should be mechanically unirritating. When this is not the case, and this is the rule, it should be mechanically irritating, grains of various kinds, fruit, vegetables, rough breads; fats, very little meat and fish, plenty of milk, cream and butter. All constipating food should be avoided, such as potatoes, tea, macaroni, rice, cocoa or chocolate. The diet should be largely vegetarian and fruitarian, but always within the individual limitations. It is well to lay stress upon thorough mastication, so that the food may become intimately mixed with the gastric juice, but there is no necessity of specialization in the mode of chewing.

Ever since Escherich (Die Darmbakterien der Saüglinge und ihre Beziehungen zur Physiologie der Verdauung, 1886) described Bacillus lactis aerogenes and Bacillus coli commune as normal inhabitants of the human intestine in the child, the subject of the flora of the intestine has received much and merited attention. The adult bacteria have been investigated by a large number of observers and the flora of the adult has been fairly well established (v. Herter, l. c.). Several conclusions have been reached, which are of importance for our purposes. I. That every individual has his own flora, more as to number than variety of bacteria, and that these act as protectors against invasion by other lower forms of life from without. The latter statement, which was first expressed by Escherich, has been insisted upon by many subsequent observers, and is of enormous value for prophylactic purposes. II. That when the normal relation between the bacteria is disturbed the individual species which predominates produces symptoms which are due to this inordinate activity, in our case that of putridity. And this is the fact which interests us therapeutically. When we consider that one-third of the feces is made of bacteria (Krehl l. c.) it will be seen how important bacterial activity becomes for us. III. That the individual flora of the

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intestine can be largely changed by the quantity of the food, by bacterial admixture or, possibly, by the nature of the food.

In these circumstances it is not remarkable that therapeutic measures have been instituted to destroy the bacteria which have overpowered the normal ones, in one way or another. Intestinal antiseptics have been recommended and are being given constantly nowadays. While the subject is one that requires much more accurate study than it has received, and much indiscriminate prescribing of intestinal antiseptics is done, my experience does not permit me to subscribe to the statement that they are useless in preventing intestinal putridity. I have followed their activity by testing the urine for decrease in indican and have found that at least five drugs are of value; salicylic acid combinations, betanaphthol, thymol, creasote and menthol. Salicylate of soda, from wintergreen, I use in the milder cases, given daily, frequently in one of the aperient mineral waters. Sometimes salol may be given for a week instead of salicylic acid. Both menthol and betanaphthol I give in the form of shellac-salol coated pills as first recommended by Waldstein. Betanaphthol may be given in five grain doses for a long time with safety and no intoxication need be feared in this dosage. It is most valuable, as it renders the stools practically odorless and reduces indican to a minimum. Menthol is given in those cases in which there is much production of gas, 0.1 — 0.2 gm. (gr. iss — iii) and with impunity for months. Thymol is given in the same doses as menthol. It is of service sometimes when betanaphthol fails. Creasote, I give in the form of benzosol 0.30 — 0.60 gm. gr. v — x three times daily. It is split up in the small intestine principally into its component parts, benzoic acid and guaiacol, and is especially valuable in those subjects in which there is glandular enlargement..

The idea of employing the results of bacterial activity to counteract putridity in the intestine is not new. Le Sage, in 1888, first used lactic acid for the treatment of green stools, supposed by him to be the result of bacterial activity. Next, chronologically, comes the attempt to destroy bacteria by the activity of others which are antagonistic to them, recommended by Pasteur and applied in various diseases, for instance in typhoid fever, where Rumff injects cultures of B. pyocyaneus. But, for our purposes, it was left to Metchnikoff (The Prolongation of Life) now deserting the phagocyte to proclaim that premature senility is due to the presence of an intestinal sac (the colon)

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in which the remnants of digestion are exposed to putrefactive bacteria, the products of which are absorbed. He then, in order to prevent the putrefaction, recommends the ingestion of lactic acid-forming bacteria in milk, choosing B. bulgaricus. In practise he combines this with Streptococcus lacticus because the taste of the preparation is improved. In this country his method is followed by the administration of tablets of lacto-bacillene, supposedly made for him, consisting of B. bulgaricus, Strept. lacticus and a yeast.

The principles upon which depends the activity of all of the lactic acid preparations are two: first, that the putrifactive bacteria in the colon, being anaerobes, are destroyed by these which are aerobes; secondly, that the presence of the lactic acid prevents putrefaction in the colon as the putrefactive bacteria do not thrive in this medium. An excellent review of this whole subject, with analysis of the various bacteria of commerce, and conclusions, is found in an article of P. G. Heinemann (Lactic Acid as an Agent to Reduce Intestinal Putrefaction, *Jour. A. M. A.*, Jan. 30, 1909). According to this author, the following lactic acid prepartions are in the market in this country: Lacto-bacilline, fermenlactyl, both French; kefilac, yogurt, lactones, and two other preparations made in this country. To these may be added a French preparation called lacteone and another American one, lactic bacillary tablets. I have enmployed lacto-bacilline, lactone, lacteone and the lactic bacillary tablets, having in the course of nearly two years discarded lacto-bacilline, lactone and lacteone, and now giving only the latter. It is only just to state that the results from lacto-bacilline, lacteone and the lactic bacillary tablets are about equal, when determined by the presence or absence of indican alone, but for many reasons I prefer an American product when of equal efficacy with imported ones and, in this instance, the lower price must also be taken into consideration. In the beginning, I determined to find out how much the process of putrefaction could be influenced by these bacilli alone without changing the diet, but I soon gave this up as the results were unsatisfactory in the greatest number of cases. I furthermore found that, notwithstanding the suggestive effects of the labels, my patients' bowels were not moved, so that this also had to be attended to. With prolonged use of these preparations the constipation has ameliorated, as milder measures sufficed to cause emptying of the bowel. The therapeutic results to

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which I now wish to call your attention are therefore due to combined treatment, measured in terms of indican. There were 38 cases in all and of these 30 were free from indican for a greater or less length of time. At a glance this result is not especially good, but the material was that of private practise, the patients therefore not under perfect control, moreover, they were, in most instances, following their usual vocations. The urinalysis was made once a week, and frequently oftener, as occasion required.

It has been suggested that bacterial contamination of food be prevented, and it seems that this may lead to some results. For the present, at least until this subject is thoroughly settled, it is wiser to depend upon the natural protective processes of the organism. While autointoxication is one of the most common conditions found in the human being, it would be adding another set of prophylactic dietetic measures to the great number which already exist and one which could not be valuable.

The treatment of renal insufficiency suggests itself, if the ordinary means applied to this end are not adequate, the skin may be called upon to do more work, but this is not necessary as a rule.

In women, according to my experience, ovarian internal secretion does not a little to cause symptomatic discomfort. Without any change in indican the patients will complain especially during the establishment of the menopause, in other words just a small amount of toxin added to that already present in the blood, is sufficient to provoke symptoms. In all these cases the administration of ovarian substance has given relief. The relation of internal secretion to other intoxications is a field which may be cultivated with fruitful, therapeutic results.

The length of treatment varies somewhat with the cause and duration of the autointoxication. In many of these patients autointoxication has existed for a great number of years and, while we may prevent further progress in organic lesions or even remove some already existing, the duration of the treatment must be continued for years. At first the results may be nothing short of marvelous, but if the patient does not persist relapses always occur. The physican who does not appreciate this fact will soon become discouraged and will take a pessimistic view of the efficacy of any treatment in this condition. It is wise and proper, therefore, to admonish the patient that no permanent result can be expected under two years, and frequently it takes longer.

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In closing, permit me again to warn against doing for autointoxication or autoinfection that which Hebra claimed was made of scrofula; an Augean stable for bad diagnoses. Already we see evidences of its taking the place of other diagnostic sins which, I am sure, need not be committed when proper attention is given to the subject.

The Significance of Coordinated Reflexes in Differentiating between Functional and Anatomical Diseases of the Nervous System.

By C. F. HOOVER, M. D., Cleveland

In any case of paresis of one or both lower extremities, the first problem offered the examiner is to determine whether the disability is due to an anatomical lesion or to cerebral inhibition.

If cerebral inhibition of voluntary muscular activity is wilfully applied we term the patient a malingerer. If cerebral inhibition is involuntary and is due to an impairment of the will, the condition is termed hysteria. Although the subject has received the attention of a host of clinicians and the literature on the subject has attained an enormous volume there has never been a direct method evolved, for solving the problem, which can be applied in all cases. If paresis of one lower extremity is due to an interruption of the crossed pyramidal path we expect with confidence to find the knee-jerk exaggerated and dorsal flexion of the great toe to follow irritation of the plantar surface in the method described by Babinski. If paresis of a lower extremity is not attended with an exaggerated patellar reflex and Babinski's plantar phenomenon we then seek some indications of an involvement of the peripheral nerves, viz.: tender nerve trunks, diminished reflexes and trophic disturbances in the skin and muscles. But suppose a patient has met with an accident and promptly thereafter has hemiplegia or paresis of a leg and the patellar reflex is not exaggerated and Babinski's plantar phenomenon is absent, the knee reflex is little modified or unchanged, and there is no tenderness of accessible nerve trunks and of course, within a short time, no trophic signs will be apparent in the skin or muscles. How are we then to determine whether our patient has a functional or genuine paresis? In most instances the nature of the accident, the presence or ab-

Read before the Academy of Medicine of Cleveland, March 19, 1909.

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sence of the signs above referred to and the extent of impairment to sensory percepts may give us some decisive information, or it may be necessary to delay judgment in the matter and wait a sufficient time for the decisive signs of an anatomical lesion to appear, or fail to appear. This is the situation in which a skillful diagnostician may find himself when a prompt decision is necessary. The following case is one which illustrates the point.

An engineer was thrown from his cab and struck the ground with the right side of his head and right shoulder. He was somewhat dazed from the fall and before transportation to the hospital he was given a liberal quantity of whiskey. Within an hour after his arrival at the hospital the patient developed a left-sided hemiplegia. Under the circumstances one would suspect a meningeal hemorrhage, which demands surgical intervention. A careful analysis of the motor and sensory phenomena may not be decisive and as the danger of opening the skull under modern surgical methods has been greatly reduced, the clinician may choose the hazard of an operation in preference to the greater danger of conservatism when meningeal hemorrhage is concerned. Under such circumstances, as I have just portrayed, the diagnostician arrives at a decision by judicially weighing all the evidence for and against an anatomical lesion. He has not a direct method of testing his patient which will decide the broad question as to whether the patient is suffering from a functional or genuine hemiplegia.

There is another difficult position in which a physician is often placed and that is, as an expert witness in personal damage suits. Any physician who has had experience on the witness stand realizes how unsatisfactory his differential diagnosis seems to the minds of inquiring lawyers and juries who are looking for direct and decisive information and wish to be relieved of the burden of sifting medical evidence in addition to treating evidence of facts. All the methods thus far employed in such cases have depended on the affected part for their exhibition. And this very fact is an element of weakness in all of them. Moreover all the methods employed are applicable only to pareses which have their origin in certain parts of the nervous system. None of them can be applied to the general fact of paresis whether it be peripheral, spinal or encephalic in origin. This is the feature of our diagnostic methods which is so unsatisfactory to

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the minds of a jury. If the plaintiff alleges a paresis of his left lower extremity what the jury wishes to know is, is the plaintiff suffering from paresis or is he not suffering from paresis? They can not deal with signs which serve to differentiate between various sources of paresis. The significance of superficial and deep reflexes and trophic disturbances is not clear to the juryman's mind nor indeed to the mind of the judge. So what is the result? In the absence of logic of clinical pathology, (the process by which the medical opinion is attained), the entire differentiation is ignored and only a final opinion finds lodgment in the judicial minds of court and jury. As a consequence the expert witness who has the most convincing manner of giving evidence weighs heaviest in the judicial scale.

Can we devise a method for testing these doubtful cases which will appeal to the mind of a layman as well as to the mind of a clinician? I think such a method is available. But before describing my clinical experiences I wish you to consider one of the normal adaptive coordinated reflexes which we have acquired in the act of walking. In the act of progression we employ a crossed coordinated reflex which is involved in the synergic innervation of both lower extremities. The process of walking involves activation of the flexor iliofemoral muscles of one side to swing the limb forward, and of course with activation of the flexors there is a coincidental inhibition of the extensor iliofemoral muscles of the same side. For the purpose of progression, however, the activation of the flexors of the one side is attended with activation of the extensors of the opposite side. This synergic action is due to coordinated reflexes which emanate from the dorsolumbar cord.

Sherrington[1] describes an experiment made on a dog which has had the spinal cord severed in the cervical region. "In the flexion reflex of the hind limb excited by noxious stimuli, e. g., a prick or a Faradic current, the limb itself is drawn up—if weakly, chiefly by flexion at the knee; if strongly, by flexion at the hip as strongly as at the knee. At the same time the crossed hind limb is thrown into action, primarily in extension, but this is soon followed by flexion, and alternating extension and flexion is the characteristic result. The rate of this alternation is about twice a second. That is to say, the foot which has stamped on the thorn is drawn up out of the way of further wounding, and

[1]The Integrative Action of the Nervous System.

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the fellow hind limb runs away, and so do the forelegs, when—which is more difficult to arrange, owing to the height of the necessary spinal transection—they also are included, fairly free from shock, within the 'spinal' animal."

By the spinal animal he means, an animal in which the cord is separated from the encephalon by transection.

Sherrington finds in the dog that a strong flexion reflex in one hind leg nearly always brings out an extension movement in the opposite hind leg.

Sherrington [2] says: "In the spinal rabbit, on the other hand, less often in the dog, the crossed reflex from one hind limb to the other is sometimes not an asymmetrical movement, but a symmetrical one, this seems to stand in obvious relation to the hopping mode of progression of the animal."

From Sherrington's observations we learn that the irradiation of reflexes results in synergic movements which express coordinated reflexes in the animal's external life. These coordinated reflexes are acquired, they are not congenital. We have but to watch a child learning to walk to see how the want of these coordinated reflexes defeats the childs early endeavors. It is not until the synergic movements of both limbs are effected through coordinated spinal reflexes that the act of progression ceases to be attended with conscious effort.

The act of walking, as it is finally learned then, is dependent on the acquisition of adaptive coordinated reflexes. Although these coordinated reflexes express some purposive movement and comprise the integrative action of the nervous system they are reflexes nevertheless just as the simple tendon reflex or pupillary reflex which consist in the activation of three factors, viz.: Initiation, conduction and end-effect.[3] "The outcome of the normal reflex action of the organism is an orderly coadjustment and sequence of reactions."

With this view of synergic activity of the skeletal muscles, viz.: that synergic activity consists in orderly coadjustment of reflexes, we may attempt to call into action these contralateral or irradiating reflexes when the initial movement involves the activation of certain muscles which is employed in an habitual purposive movement.

If a normal person in the recumbent posture lifts the ex-

[2] Loc. cit. p. 162.
[3] Loc. cit. page 6.

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tended right leg he activates the iliofemoral muscles which flex the thigh on the pelvis, (The initial movement employed in walking). This initial flexor movement is accompanied by inhibition of the extensor iliofemoral muscles of the same side and at the same time elicits a contralateral reflex movement in the extensor iliofemoral muscles of the other side. So in lifting the right limb off the couch the left limb is always opposed against the surface of the couch. This action on the part of the left limb is plainly visible and if you place your hand under the tendo Achillis of the leg opposed against the couch you will perceive the contralateral opposition is always equal to the lifting force exhibited on the other side.

Given normal subjects who make a free will effort at lifting one limb, the complemental opposition offered by the other limb sustains the same constant relation as the law of action and reaction in physics. If our normal recumbent subject makes an effort to oppose one limb against the surface of the couch we will see in the other limb a slight flexor movement of the iliofemoral muscles of the other limb, and if you place your hand under the Achilles tendon of the contralateral leg you will perceive that leg rests less heavily against the couch during the extensor movement of the other side. In some persons the complemental opposition is attended with slight flexion of the leg on the thigh. Although in efforts of extension of one side, the complemental flexion of the opposite side does not sustain the relation of action and reaction as is seen in complemental opposition to flexor movements of one limb, still I feel quite sure if the subject will make a genuine uninhibited effort to oppose one limb against the couch you will always perceive a flexor movement in the iliofemoral muscles of the other side and the heel of the contralateral limb will rest less heavily on the couch. Complemental opposition of one side accompanying extensor movements of the other side has not the same constancy as complemental opposition which invariably accompanies flexor movements. If the subject is lying on a couch and you ask him to lift the right leg in the air and hold it there against your attempt to depress the leg the opposition of the left leg against the couch will be equal to the lifting force exhibited on the right side. If now you request the subject to oppose the right leg against the couch the flexor movement in the iliofemoral muscles of the left side will be apparent but it will not be equal in force

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to that of the extensor action of the right side. Nevertheless there is a contralateral coordinated reflex apparent when the initial movement involves activation of the extensor iliofemoral muscles as well as when the initial movement involves the flexor iliofemoral muscles.

This contralateral muscular activity we may call complemental opposition.

If a patient has paresis of one lower limb and you request him, (while he is lying down), to make an effort to lift the paretic limb you will perceive a complemental opposition of the sound leg which is very pronounced. If the hemiparetic patient now is requested to lift the sound leg in the air and hold it there against resistance then the complemental opposition of the paretic leg will be equal to the voluntary muscular strength he is able to exhibit on that side. In cases of paraparesis of the lower extremities where the involvement of the two sides is unequal the complemental opposition exhibited by each side will be found to be equal to the voluntary muscular strength in each side respectively.

Now how are these synergic movements in cases of malingering and hysteria?

A case of malingering which I recently saw gave the following results on examination. The patient pretended to have a marked paresis of the right thigh and leg. He was seated in a reclining chair with both feet resting on a wooden kitchen chair. The man naturally wished to give an exhibition of strength in his sound leg so I asked him to lift the left leg in the air and hold it there against my attempt to push it down. While seeming to be occupied with his left leg I slipped my right hand under the Achilles tendon of his right leg and found the complemental opposition of the supposed paretic right leg was quite equal to the resistance he was offering with the left leg. When asked to hold the right heel against the surface of the chair on which it was resting and to prevent my lifting his right leg he was able to offer a resistance not in excess of three or four pounds weight, although only a moment before he had exhibited a complemental opposition on the right side equal to one hundred pounds in weight. The patient was then asked to lift the right leg in the air. As he made what seemed to be a genuine effort at lifting the right leg I found there was no complemental opposition being made on the left side. This lack of complemental

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opposition in malingerers and hysterical subjects thus far has been confirmed by a number of observations made by other clinicians. Lhermitte[1] in an article recently published in the *Semaine Medicale* confirms my account originally given of this sign in the *Journal of the A. M. A.* of Aug. 29, 1908 and furthermore found that a very subjective patient, who was given a paresis of the left side of the body by suggestion when hypnotized, behaved just as the malingerers and hysterical subjects behaved in the matter of complemental opposition, viz.: when directed to lift the paretic leg the other leg offered no complemental opposition, when the patient was directed to lift the sound leg, then the paretic leg offered strong complemental opposition. Lhermitte recognizes in this experiment some contributory evidence in favor of the view that hysterical paresis is due to cerebral inhibition and not to any interception of afferent or efferent impulses, anywhere in the nerve paths. Lhermitte confirms my observations on cases of genuine paresis and on functional paresis when the functional paresis was of the flaccid character, but in a case of spastic functional paresis of one leg he found a different behaviour in the complemental opposition. When the patient was directed to lift the spastic paretic limb the other leg gave a complemental opposition as in cases of genuine paresis. But he further observes that when the patient was directed to lift the sound leg, then the complemental opposition offered by the spastic and paretic leg was much greater than the complemental opposition which was offered by the sound leg. Although there was complemental opposition from the normal leg when Lhermitte's patient made an effort to lift the spastic leg and thus far behaved as a spastic paresis from a genuine lesion, nevertheless when the patient lifted the sound leg from the couch, complemental opposition from the spastic and paretic leg was much stronger than it was on the sound side. This disparity was enough to show the functional character of the disability for the complemental opposition from the spastic leg was disproportionately great and the complemental opposition from the sound leg was disproportionately small. I have not had the opportunity to study a case of spastic functional paresis of the legs, but exactly the same results in complemental opposition can be demonstrated in any normal person who is asked to simulate these lesions. For my purposes I employed physicians who could better

[1]La Semaine Medicale, Nov. 25, 1908.

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understand what was wanted of them, but did not know what coordinated reflex responses were looked for. If the person examined is asked to simulate a flaccid paralysis of one leg and is then instructed to make a pretense at lifting the flaccid limb there is no complemental response from the opposite side. If now the subject is instructed to lift the sound leg there is a strong complemental response from the flaccid limb. Thus we see exactly the same modification of coordinated reflexes in malingerers, hysterical patients and hypnotic subjects. Now ask the normal subject to simulate a spastic paresis of one leg and when he attempts to lift the spastic limb there will be a complemental response from the other leg, but if he is now asked to lift the sound leg the complemental response from the spastic limb is disproportionately great. Thus we have exactly the same behaviour as in Lhermitte's case of functional spastic paresis of one leg. In other words the inconsistency in complemental opposition in functional spastic paresis is demonstrable as in flaccid functional pareses but its mode of manifestation slightly differs from the mode of manifestation in the latter cases. The point always to be sought is whether or not there are any signs of cerebral intervention in the spontaneous spinal coordinated reflexes.

If complemental opposition is due to coordinated spinal reflexes, then we would expect to see some modification of coordinated reflexes. To use the term of Sherrington, if the "synapse" of a simple reflex is altered then the "synapse" coordinated reflexes must be changed and this we find actually to be the case.

The following observations were made on two cases of severe tabes dorsalis. The one case, A, had less severe ataxia than case B.

A had neither patellar nor ankle reflexes but the muscular sense in his legs was much less affected than was the muscular sense in the upper extremities. This patient could, (with his eyes closed), place the heel of one leg on the patella of the other leg, although it was done with some uncertainty.

In his arms the ataxia was so great he could feed himself only with great difficulty. When A was asked to lift one leg off the couch and hold it up against my resisting hand, there was complemental opposition on the other side, but in each instance, (with eyes closed and eyes open), the complemental opposition

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was disproportionately great. There was not the complemental balance between resistance in one leg and opposition in the other which we see in normal cases, nor in paresis due to disease of one or both crossed pyramidal tracts. So we are compelled to admit the coordinated reflex succumbs later than the other simple reflexes, but the reflex was altered in the manner described.

Case B suffered from very severe ataxia in the lower extremities, with loss of ankle, knee and cremaster reflexes. He had, (two years ago), two painless fractures of the left leg which reunited with some deformity. To use the patient's own words, "I cannot tell one leg from the other. I have sufficient strength but I can not direct my legs. As I lie in bed I dare not move my legs without watching them for fear of knocking myself on the head with my feet." This man had fairly good voluntary muscular strength in his legs, but the loss of kinesthetic perception was complete. On a table standing beside the head of his bed was a glass of milk. The patient was asked to close his eyes and lift the right leg perpendicularly to the bed, the extended leg was brought upward rapidly, as the swing of a flail until his foot knocked the glass of milk off the table. This method of procedure shows the degree of hypotonus and ataxia which the patient suffered. When this man was asked to hold one leg off the bed against my resisting hand there was no complemental opposition in the other leg when he held his eyes shut. But when he opened his eyes and lifted one leg then there was complemental opposition exhibited in the other leg, but as in the case of A, the complemental opposition was disproportionately great. Complemental opposition was greater than the resistance offered in the other leg. So far as complemental opposition is concerned, the want of it was as decided as in malingerers or hysterical subjects when the patient A closed his eyes, although the want of contralateral opposition in this case was not due to cerebral inhibition, but to the loss of his coordinated spinal reflexes, which succumb apparently only in cases of extreme ataxia.

When B opened his eyes and then lifted one leg the complemental opposition originated from cerebral excitation, but not from the normal spinal reflex.

If this complemental opposition is purely a spinal reflex then we must expect to find the coordinated reflex preserved in cases of spastic paraplegia and this I have found really to be the case.

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One patient had syphilitic myelitis with absolute loss of voluntary muscular strength in all the muscles of both thighs and legs. I say absolute paralysis with this qualification, he was able to produce a slightly perceptible movement in both great toes, but that was the only sign of voluntary muscular power in the lower extremities he was able to exhibit. When a muscular reflex in the quadriceps and in the iliofemoral flexors was elicited we could not perceive a counter-movement in the other leg. But when a sharp pin thrust was given to the sole of either foot, there was a prompt flexion at the knee and hip and synchronously with this reflex movement there was an extensor movement in the other thigh which could be seen and palpated when the hand was placed under the flexor tendons at the knee. To bring out this coordinated reflex the patient must lie on his back. When the patient was lying on his side the coordinated reflex was not perceptible. The patient perceived the deep thrust of the pin as a pin prick, but it evidently caused very slight pain. Here we have complete loss of physiological continuity in the spinal crossed pyramidal paths and consequently we reproduce the same coordinated contralateral reflex which Sherrington demonstrated in his spinal dogs and which I have seen Dr. J. J. R. Macleod, Professor of Physiology in Western Reserve Medical School, produce after Sherrington's method. In the other case of spinal spastic paraplegia in which the loss of voluntary muscular power was not absolute in one limb the reflex could be shown in the same manner. But such a case has not the significance as the absolute paraplegic in showing the purely spinal character of complemental opposition.

To sum up the results of these observations I think we are justified in assuming that complemental opposition is a contralateral coordinated spinal reflex and is always present when the spinal synapse is not completely destroyed unless cerebral inhibition intervenes. Also we must observe in cases of functional spastic paresis of one limb the complemental opposition is present on the sound side because the patient activates his flexor iliofemoral muscles, but through cerebral intervention he prevents the normal reciprocal inhibition of the extensor iliofemoral muscles. Under such conditions the functional character of the spastic paresis is betrayed by the disproportion between the complemental opposition of the two sides, i. e., when the patient holds the sound leg in the air against resistance the complemental opposi-

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tion exhibited in the supposed spastic and paretic limb is much stronger than the complemental opposition exhibited by the sound limb during an attempt to lift the paretic limb. This is inconsistent with a genuine paresis. For in genuine paresis the complemental opposition exhibited in the paretic limb is never in excess of its voluntary muscular strength.

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The Medical Expert Witness.

By D. C. WESTENHAVER, LL. B., Cleveland

King David, in his haste, once said: "All men are liars;" and this denunciation is with the common consent of lawyers and judges, still applied to expert witnesses. The common remark is: "We have liars, damned liars, and expert witnesses." This is, of course, a witty exaggeration; but that the reputation of the medical expert and of all other expert witnesses for truth and veracity is shockingly bad, is a fact for which there is eminent authority.

Mr. Taylor, in his work on "Evidence" (§58), speaking of expert witnesses says:

"Their judgments become so warped by regarding the subject in one point of view that even when conscientiously disposed, they are incapable of expressing a candid opinion. Being zealous partisans, their belief becomes synonymous with faith as defined by the apostle, and it is too often 'but the substance of things hoped for, the evidence of things not seen'."

Mr. Redfield, in his work on "Wills" (Vol. 1, page 103), speaking of them, says:

"Medical experts are beginning to be regarded much in the light of hired advocates, and their testimony as nothing more than a studied argument in favor of the side for which they have been called."

These opinions might be cited indefinitely. I shall, therefore, briefly inquire to what extent this ill repute is deserved, wherein the objections urged against expert medical testimony are sound, and how far, if at all, the evils admit of a legislative remedy.

Experience and study have convinced me that there is no justification for the indiscriminate abuse of expert testimony,

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and especially that of the medical expert. Many of these objections are based upon the inherent weaknesses of all human testimony. They are directed towards defects which are inseparable from any system of trying differences between man and man, and are found in all forms of human testimony, depending upon observation, memory or veracity.

In the domain of expert testimony, the inherent difficulties are much greater than in ordinary testimony. Expert witnesses do not usually speak of facts or of their own personal knowledge, but give opinions based upon the facts to which others testify. The expert is, therefore, not only subject to the same mental limitations as are laymen, but the subjects of which they speak are more subtle, more difficult of ready comprehension, more complex and more speculative. And it is common knowledge that in matters of opinion or speculation the opportunities for differences are much greater than in matters of observation or recollection, and are much less susceptible of being determined with accuracy.

Some of the criticism is based upon the fact that experts disagree and thereby confuse juries. Other witnesses also disagree and thereby confuse juries. It is, however, only because parties and witnesses disagree that courts are established, and trial of issues of fact are made necessary. If expert testimony is more unsatisfactory than other forms of testimony, allowances must be made for the nature of the subject matter and the inherent weakness of opinion evidence and accepted as less harmful to society than the failures of justice which would ensue without the use of it.

Personally, I am convinced that so far as courts have gone in admitting medical and other expert testimony, the advance has not been in violation of any sound principle in the rationale of judicial evidence. The necessity for such testimony cannot be denied. Mr. Francis L. Wellman, a lawyer of extensive experience in trial practise in the City of New York, asserts that in 60% of the more important litigation, the testimony of expert witnesses is a necessity. It is impossible for any one to know everything, and in these days of specialized knowledge, the limitations upon the information of the judge and of the jury are more marked than ever before. It is indispensable that light should be sought from those knowing the most about many questions beyond the range of common experience or common

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knowledge. To get this light witnesses must be called who, by reason of experience or a course of previous habit and practise or study have become experts in that department of human knowledge.

The criticisms usually made of medical expert testimony are chiefly the following: (1) The hypothetical question. (2) The technical jargon of the witness. (3) The partisan bias of the expert.

I. The hypothetical question is one of the favorite points of attack. Mr. Wellman, in his "Art of Cross Examination," denounces the hypothetical question in strong language. He says:

"It is, perhaps, the most abominable evidence that was ever allowed to choke the mind of a juror or throttle his intelligence. An hypothetical question is supposed to be an accurate synopsis of the testimony that has already been sworn to by the various witnesses who have preceded the appearance of the medical expert in the case. * * * * Nine times out of ten the jury take the answer of the witness as direct evidence of the existence of fact itself."

Hon. M. J. Wade, Professor of Law in the Iowa State University, in a recent essay on the subject, says he would abolish altogether the use of the hypothetical question on direct examination; and would require the expert to be present in court during the trial, listen to all the evidence and at the end of the trial, go on the witness stand and give his opinion, based upon all the evidence in the case, just as it was presented. Then upon cross-examination, while he would permit the use of the hypothetical question, he would limit it to the facts of the case, which must be fairly presented in the questions asked. The practise of allowing on cross-examination hypothetical questions based on a part of the facts in the case or on assumed facts not in the case, he would abolish entirely.

While these criticisms are not without force, the solution of the difficulties pointed out is not easy. The hypothetical question grows out of the institution of trial by jury. An assumed state of facts framed for the purpose of allowing the expert to give his opinion is the law's effort to preserve the independent right of the jury to decide the issue of fact involved and to give the jury at the same time the knowledge of the expert in matters beyond the range of their experience. If the hypothetical question

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is abolished, and, as Mr. Wade suggests, the expert is turned loose to give his opinion on the case as a whole, none of the evils of expert testimony are avoided. He becomes also an expert on the veracity and integrity of the other witnesses. He gives his opinion, not only on matters beyond the range of the experience of the ordinary man, but on the weight and credit of the testimony, which is a matter peculiarly preserved to the jury and upon which they are specially qualified to pass, much more so than any expert or commission of experts. The expert in this view, usurps the place of the jury, and decides for himself what part of the evidence in the case he believes to be true, what part is material to the formation of his opinion, what part he may regard or disregard as not affecting his conclusion. To abolish the hypothetical question is, it seems to me, but a half-way step to the substitution of trial by a commission of experts for trial by a jury, and whether it is wise or not to adopt the commission system of trial, is a question entirely aside from our inquiry. I may add, however, that I am not in favor of the change.

Futhermore, a hypothetical question should fairly embody all of the relevant and material facts which the evidence tends to prove, otherwise the trial judge should not permit it to be asked. The criticism, therefore, of Mr. Wellman does not go to the theory, but to the practise. It assumes the incompetency either of the judge or of the jury, and where incompetency is more frequently found is a question, as to which, as Sir Roger de Coverly says, much may be said upon both sides. In other words, we come back to the personal equation which always exists in the administration of any system of justice, and against which neither rules of law nor of evidence furnish any safeguard.

Again, the use upon cross-examination of a garbled or irrelevant hypothetical question is a protection against the intense partisanship of the medical expert. It is probably the only protection which a party now has, and, therefore, to adopt the suggestion of Mr. Wade would intensify rather than minimize the evils of the hypothetical question.

2. Another favorite criticism of the medical expert is the technical jargon used by many of them in giving their testimony. That they do offend in this way, no one can truthfully deny. But medical men defend the practise, and complain because lawyers destroy the weight of their testimony by ridiculing to juries their scientific terminology. However, some flagrant and amus-

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ing examples of their offending in this respect is given by Mr. Wade, and will, I think, show that lawyers as always have reason on their side. A surgeon, describing the result of a blow on the head by a horse's hoof, uses this language:

"Anterior to the right parietal eminence, running parallel with the coronary suture into the squamous portion of the temporal bone, there is a fracture of the bone as long and as wide as the finger. Its edges run parallel to each other and are slightly arched with the convexity posterior; the anterior is sharp, the posterior depressed. On the inner surface of the skull the vitreous table is detached and the dura mater lacerated. In addition there was found between the latter and the internal meninges a thick layer of recent blood coagula."

In another case before him, involving the loss of a few teeth, a surgeon was on the stand and was telling about the missing teeth, making use of their technical names, when a lawyer, who did not understand any more than did the jury the terms used, broke in and said: "What tooth was that you referred to, doctor, his eye-tooth?" The doctor looked at the lawyer in a pitying sort of way and said: "There is no such thing as an eye-tooth."

The evil, if evil it be, is beyond the control of the legislature. Neither can control the vocabulary a witness shall make use of in giving testimony, whether that witness be an ignorant porter, or a learned doctor of medicine. The misuse of a technical vocabulary, so far from reflecting on the witness' qualification, may be taken as indicating his youth or, perhaps, his want of horse-sense. This evil, like so many of the others urged against expert testimony, tends to correct itself, in that it weakens rather than strengthens the testimony of the witness. Power of punishment is in the hands of the jury, and is usually administered by them with judgment and discretion. They are far from being impressed with the wisdom of a witness who cannot express himself even when speaking of abstruse medical problems in a terminology that they understand. One of the common complaints against the expert witness is that neither courts nor juries believe what he says, and in nearly all of the cases in which he has been most severely denounced, he seems not to have misled either the court or jury.

3. The medical expert, it is said, has become merely a hired advocate whose function it is to make a studied argument under

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the guise of an oath and in the attitude of a witness on behalf of the side which engages and pays for his services. This, unfortunately, is in many cases true, and herein it seems to me lies the one grave defect of medical expert testimony. This attitude of the witness is responsible for most of the just criticism. It produces the intense partisanship which so discredits the weight of the testimony.

The reasons why the medical expert is so often merely a hired advocate are, it seems to me: First, the unlimited freedom given to each party to select and call without limit as to number his own expert witnesses. Second, the absence of any regulation as to the amount or manner of making compensation.

Nearly all witnesses, however, are more or less unconscious partisans. When called and sworn on a particular side of a cause, they become more or less unconsciously interested in the outcome, and yield more or less to the temptation to help along what they are apt to regard as their side of the fight. This is a common defect of human nature with which one must reckon in the administration of justice, and while it is neither commendable nor harmless, it is beyond the reach of any remedy except such as the common sense of a jury applies to it, for a jury is apt enough to discredit testimony quite in proportion to the bias and feeling displayed by the witness.

The medical expert, indeed all experts, are, however, almost uniformly conscious and intense partisans. The business of a medical expert has become profitable, and a class has been developed who hold themselves ready and willing to give their services as witnesses for hire. Many of the cases in which they are called and in which the defects are exhibited so unpleasantly involve questions on the frontier of medical and scientific thought as to which no final theory has been accepted. The expert, therefore, is apt to come with a theory of his own which he has nursed and petted until he has for it all the fondness of parental affection, and in which he believes as firmly as if it were a scientific truth as long established and as well accepted as the law of gravitation. Naturally, under these circumstances, all the pride and obstinacy of opinion are fully aroused. In addition to this more or less natural partisanship, must be added that which is due to the private right of selection and of pay. The medical expert, holding himself, like the lawyer, in readiness to accept employment from the first comer who can pay the

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price, provided nothing is expected of him contrary to his more or less elastic private code of ethics, but who realizes that his services will not be needed unless his opinion is of service to his prospective employer, is tempted to form an opinion such as is desired, and after the opinion is once formed, is then fertile in thinking of reasons to support it. When thus hired, and once enlisted in the warfare, he becomes an advocate, and no longer occupies the attitude of a witness. While cases of this character are, I believe, rare in comparison with the multitude of cases in which medical and other experts furnish necessary aid in the administration of justice, they are sufficiently numerous to creare a real evil, and especially to injure the reputation of medical experts as a class. Notwithstanding the scandal and reproach that such witnesses have brought on expert testimony, it is more than doubtful if they have seriously interfered with the course of justice. Jurors have much more sense and shrewdness than those not familiar with trial practise are prepared to believe. They are quite capable of judging with correctness the value of expert testimony, and they receive it usually for what it is worth, and, like lawyers and judges, they agree that it is worth much less than the testimony of a witness who speaks to definite facts or to well settled medical or scientific theory. This is, in a way, begging the question. If an abuse exists, it may be said that it ought to be corrected by law rather than by good sense of the jurors. It is not, however, begging the question to rely on jurors to give proper weight to evidence or to pass on the credibility of witnesses, for such is their special duty, and on the whole, they discharge this duty with reasonable efficiency.

Several remedies for these real and imaginary abuses have been suggested which demand brief comment. They are chiefly: First, that the court shall decide in advance whether the case is one which warrants the calling of expert witnesses; second, if it is, that the court shall select the experts to be called from a list prepared either by himself or submitted by counsel; third, that the compensation of such experts, whether sworn or not, shall be fixed by the court, and paid as the court may direct; fourth, that the number who may be called in any case is to be limited in accordance with the discretion of the court.

All of these suggestions have some merit; but their value in practise would be more imaginary than real or would re-

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quire a much greater revolution in our system of trying cases than any of us are willing to adopt.

1. In theory, the court does not permit the introduction of expert testimony except when the question is one which involves special experience or special knowledge, or lies beyond the range of common experience or common knowledge. If it does not, then the court, in theory and in practise, should not permit the expert to testify. A refusal of the court, however, to permit the introduction of expert testimony upon any point where it is proper becomes error which may result in a reversal. The suggested reform implies that the trial judge shall exercise this discretion without accountability in a higher court, should he exercise it wrongly, or else that a discretion shall be vested in the trial judge to dispense with relevant expert testimony when he thinks that the case can be decided by the jury without it. Both suggestions would. in practise, become revolutionary. Vesting in the judge, and taking from the litigant the right to determine when relevant testimony is necessary or unnecessary to a proper decision of the case, or giving to the judge the right to say that the case can or should be heard upon a part only of the relevant testimony goes far towards substituting trial by the court for trial by the jury. If we are prepared to limit to this extent or to abolish entirely trial by jury, the remedy suggested does not offend one. To those who believe in a trial of issues of fact by a jury, it gives great offense.

2. Personally, I am not ready to accept the suggestion that the freedom of choice in the selection and calling of experts should be taken from the parties and vested in the courts. So long as trial by jury is to remain unimpaired, each party must be left free to select his own witness. Furthermore, the exercise by the courts of the right to select receivers, referees and masters has not been free from criticism; indeed, I think lawyers will agree that the greatest abuses in the administration of justice have arisen out of receiverships. The power of the judge to control the outcome of a case by selecting the experts and the temptation it will offer to interested litigants to impose upon the judge in making the selection might put the courts to a test which they could not easily sustain.

In this connection may be considered the suggestion that some questions involving medical or other expert testimony

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should be tried by a commission of experts rather than by a jury. Persons who favor this method are misled by a recollection of some special case in which there was an isolated issue such as the sanity of a person at some one point of time, the determination of which was controlled by expert evidence, and the determination of that issue decided the case. Usually, however, the expert testimony merely bears on some one aspect of the case or is merely an element going to make up a correct decision. Few cases turn wholly or even primarily upon some one point of expert knowledge. A committee of experts, however, making up their minds in secret, and reaching their conclusions by arbitrary processes, does not appeal strongly to lawyers as a method of finally disposing of any issue of fact. From such a decision, if final, no appeal or right of review would lie; and while I believe the right of appeal or of review might be limited with much profit, I am not prepared to destroy it altogether, and especially by substituting an arbitrary and irresponsible method of trying a controversy.

3. An expert cannot be expected to inform himself sufficiently to express an opinion on many questions or to appear in court and testify for the nominal fee allowed the usual witness. Nevertheless, it does seem to me that there should be some regulation of expert charges which will, if possible, prevent the giving of solemn testimony in judicial proceedings from retrograding into a desirable money-making occupation. As soon as expert testimony becomes a branch of business, it becomes commercialized, and the tendency is to increase the cost thereof to litigants and to make the administration of justice more expensive. The medical expert offends less in this respect, perhaps, than do other experts, particularly patent and handwriting experts. The thing to be desired is, as far as possible, to keep the members of the medical profession always ready to appear when called upon as an incident or side issue in their regular vocations, and as an aid in the administration of justice. The extent, however, to which this can be helped by limiting the compensation of an expert witness or permitting the court to fix it is quite problematic. The experience of every one is that a court is more liberal in fixing compensation for professional services than any other tribunal. Fees allowed to lawyers by courts are

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usually in excess of what the lawyer can obtain by contract from his client. Furthermore, if the court is permitted to allow such compensation as a part of the costs of the litigation, the abuse would be intolerable unless the court also had absolute discretion to say how many experts should be called and under what circumstances their evidence might be used.

4. Some courts already exercise a discretion in determining how many experts may be called. Judge Cooley asserts this right in the judge most strongly. Mr. Wade, in the article already cited, suggests that not more than three shall be called on any one subject matter of expert evidence. In the Roman law, the court had the right to limit the number to be called, and even to select two or three from those proposed by the parties and to exclude the rest. This limitation is reasonable, and might well be exercised by the courts. The legislature might safely vest the courts with this discretion. In practise, however, the abuse is not serious, for under existing conditions the cases are rare in which a party calls more experts than is reasonably necessary.

All of the abuses pointed out are more or less incident to the institution of trial by jury. To get rid of them as abuses means too drastic a reformation of our method of trying issues of fact. The English law of evidence has been evolved out of jury trial. If the right of trial by jury did not exist as under the Roman law, or if it was limited as under the French or German law, many of the evils would not exist, and the proposed remedies would be much more feasible. Many aspects of the Roman or French or German methods of administering justice appear to me superior to those of the English common law. They are not, however, the methods with which the English speaking people are familiar, and whether on the whole they are superior or inferior, is an abstract question which will be decided one way or the other as the person passing thereon has been trained in one school or the other.

The true remedy for these evils under existing conditions is a higher ethical standard on the part of the medical expert; a standard which will bring home to him a realization that he is not hired to pervert justice, but to aid courts and juries in doing justice; not to argue a case to the jury, but to tell the exact truth about definite facts or established theories. How this higher standard is to be obtained is a matter for the

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medical profession to determine for themselves. The reform, if it ever comes, must come from them. Whether or not any medical association has prepared a code of ethics governing the conduct of its members in this respect, I do not know. I think one might wisely be prepared, and conformity to it enforced under pain of professional ostracism, and in extreme cases by revocation of the license to practise. The right to disbar lawyers for professional misconduct in any department of legal work is and has been a salutary influence in keeping up the ethical standards of the legal profession. That the conduct of lawyers is not at present and perhaps has never been equal to the code of ethics to which they subscribe, or that this code is frequently violated with impunity by many of its members, does not prove that it is not highly beneficial, or that the adoption of a similar system would not improve the medical expert.

Personally, I believe that the members of the medical profession can remove the stigma which now rests upon them by reforming their ethical standards with respect to expert testimony. A member of this Association asserted at its last meeting that the profession is not responsible for the obloquy attaching to them in their character of expert witnesses. They may not be wholly responsible, but they are in large part responsible. A higher conscientiousness in deciding when and under what circumstances they will be called, a scrupulous fairness and non-partisan spirit in preparing and expressing opinions, a greater freedom from working for commercial advantage, their skill and talents as professional witnesses, would have saved the medical profession from this stigma. If the profession can and does enforce conformity to a high standard of ethics, then I feel sure that much of the obloquy will be removed and much of the clamor against expert testimony as a whole will subside, if not entirely disappear.

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Medical School Inspection in Cleveland.

By JUNIUS H. MCHENRY, M. D., Cleveland

The subject of medical school inspection dates back to the twelfth century when physicians visited schools from time to time as sanitary inspectors. But little progress was made, however, until the nineteenth century. It is said to have existed in Poland 120 years ago. In France in 1833, 1837 and 1842 laws were passed relating to school physicians. Further, in 1874 weekly medical inspection of schools was instituted in Brussels, probably the first system in the full modern sense of the term, and within the next 20 years Austria, Germany, Hungary, Holland, Sweden, Switzerland, Russia, Spain, Japan, the United States and Great Britain followed.

What the eighteenth century established for man and the nineteenth for women, the twentieth will establish for the child. In the light of today's philanthropic agitation and effort, and the present trend of legislative enactment, we may confidently predict that this country will direct its chief efforts and realize its most vital accomplishment in the interest of the child. Here the principles of liberty, in case of the child—freedom—freedom from handicaps of birth, from unhygienic and immoral environments, from degrading tendencies of industrial enslavement.

The State, is more and more assuming paternal supervision of the child: witness, for instance, the child-labor and compulsory education laws, the juvenile courts with coercive power over the parents and laws requiring medical inspection of all pupils in public schools.

The two vital questions are, therefore:

I. What can medical school inspection accomplish for the pupil? Considering eye and ear affections alone, and omitting all other conditions and diseases, it can remove these chief handicaps to the obtaining of a common school education and can lay the foundation in physical health for further years of study and the practical duties of life. The other question is: II. What can medical inspection do for the public? It can and will reduce, marvelously, the prevalence of contagious diseases and the mortality therefrom. Medical inspection of schools is a marked stride in modern sanitation and education for it means establishing and

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Read before the Academy of Medicine of Cleveland, March 19, 1909.

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preserving the health not only of this, but also of the coming generation. The master word of modern sanitary science is "prevention."

The school process further emphasizes this condition. The lengthening of the school term and the increase in the number of years of study demanded, has brought with it a great advance in the standards of work required. When standards were low the work was not beyond the capacity of the weaker or less intelligent children, but with the fuller course, keener competition and increasing demands for intellectual attainment many pupils have been unable to keep up with their grades and a class of physically and mentally backward or defective children has been created. The system of mass education, which can give little attention to the individual and which endeavors to place on the same plane children of varying qualifications and ability, has contributed to this class.

The assumption by the State of the right to compel, for its own safety, the education of its future citizens, implies that the child is mentally and physically fit to be educated and this assumption should carry with it the responsibility of requiring that if the child is not fit the educational processes shall be so changed and adapted as to insure the largest possible degree of physical as well as mental fitness.

Without such requirements the State is in the position of compelling its future citizens to submit to a process which endangers their physical welfare. In the words of Dr W. H. Allen, "When the State for its own protection compels a child to go to school it pledges itself not to injure itself by injuring the child."

It is evident that if the school process has an adverse physical effect upon the child, it can in turn be shown that this physical unfitness renders him less able to master his school duties. While the presumption of physical fitness in respect to children of school age, may well have been assumed without question, previous to the present generation, it is a startling revelation of recent investigations that the majority of school pupils are not fit to profit to the fullest extent by their educational opportunities.

Dr Thomas F. Harrington, Supervisor of Physical Training in the Boston public schools, says: "Science today has proved conclusively that the blunting of the moral sense has a distinct

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anatomical or functional stigma which in many cases is removable. Few teachers in cities where attention to defective eyes, throats and ears has been directed have failed to witness the transformation, mental, physical and moral, following the correction of refractive errors, the removal of adenoids causing deafness or oxygen starvation and abnormal metabolism."

A short time ago 134,000 children were examined by the Board of Health in New York; of these 66% needed some treatment for physical defects. Of 600 children examined in Edinburgh, 70% were found to need treatment. While a report comes from Philadelphia that only 12% of the children examined there may be considered normal.

Great changes have come over American life; we are no longer an agricultural people but have developed into a race of dwellers in towns and cities—33% of the population live in cities.

Of great importance, also, is the change that has taken, and is taking, place in our racial stock. This is important because standards of living, of cleanliness, of freedom from vermin, are being brought in by recent immigrants which are not only different from those that obtain under early American conditions, but which are inimical to those higher standards of life that are essential to the individual in a democracy that is to endure. That this is a real and large factor is shown by the following figures taken from the last census:

City.	Percent of Foreign Parentage.
Milwaukee	82.7
Chicago	77.2
New York	76.6
Cleveland	75.4
Boston	71.6

The school year is now 10 months of five hours a day. The number, too, of years of school life has increased. So the schools in their intimate commingling of children from practically all families for most, if not all, of the year, afford by far the most extensive means that exist for the spread of contagious diseases.

The subject of medical school inspection as a regular system, was first taken up in the United States by the city of Boston in 1894, followed by New York in 1897, Philadelphia in 1898, Chicago in 1900 and so on until in 1906 it was inaugurated in Cleveland.

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Medical school inspection has been thoroughly tested and worked out in detail and against strong opposition in New York City. It has proved its efficiency until now New York has the most comprehensive and highly developed system of medical inspection of schools, not only in this country but in the world. I give you this not from my own deductions but from the report of the Board of Health and Education of Great Britain, published recently in the *British Medical Journal.*

Now as to the history of our own medical school inspection in Cleveland. In March, 1906, the Board of Health appointed 26 physicians whose duties were to attend the indigent sick and to inspect the public and parochial schools in their respective wards. The boundaries of these wards varied greatly, some of the physicians having eight or nine schools, others only three or four. It was obvious, therefore, that the amount of work per man was unequal. An organization was effected by the ward physicians themselves known as the Cleveland Medical School Inspectors Association. It was organized for mutual benefit and to devise some means by which the school work, among its members, could be better equalized.

The amount of work of each member was carefully estimated, the ward work together with that of school work, and as a result a redistribution of schools was made. This new assignment of schools was submitted to the Board of Health, which passed upon the same, and, it went into effect one year later, in 1907.

Every inspector is now required to visit each of his schools every other day. The duties of the inspectors are to examine and exclude from school any child having a contagious or communicable disease and to recommend to the parents the correction of any existing abnormality in their children, such as defective eyesight and hearing, or any pathological condition such as enlarged tonsils and adenoids all of which combine to retard the natural growth of the child, both physically and mentally. Further, all children showing symptoms of measles, scarlet fever, diphtheria, whooping-cough, mumps, chicken-pox, or smallpox, are sent home. Cultures are taken in all cases of sore throat in which diphtheria is suspected.

It is the duty of the teachers to send such children to the principal for examination by the inspector when he calls. Besides this there is a room to room visitation by the inspector from time

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to time to discover sickness or abnormality of any child which may have passed unnoticed by the teacher.

During the school session monthly meetings are held by the inspectors and representative men in our profession, specialists in their lines, have been invited to address this association in order to increase the knowledge and perceptive powers of the members along these various lines. Much has been gained by these informal meetings. The members present conditions and cases met with in their school work. Plans and ideas are brought out which are mutually helpful and free discussion prevails. To a great measure the success of the work has been largely due to the spirit existing among the individual members.

Before any systematic school inspection was instituted, it is an undoubted fact that large numbers of uncontrolled cases of contagious diseases were to be found in school rooms and the contagious element was widely disseminated by the close contact of the children in the class-room and playground and the commingling of their hats and wraps in the cloak-rooms.

The fact that the communicable disease rate in Cleveland immediately falls at the close of school in the summer and that it is always low during and immediately after the Christmas vacation, indicates that there is no surer means for the spreading of a communicable disease than the schools.

Besides the contagious diseases, which are in reality and after all the minor disorders, abnormal conditions, such as one may find in the eyes, ears, nose and throat, exist in an enormous percent of school children, as has been shown. Many a dull listless inattentive pupil, whose scholarship is below the standard, is pushed by both teacher and parent to do work for which he is physically incapacitated by reason of enlarged tonsils or an adenoid growth which prevent that child from receiving the proper amount of air and thereby oxygen into his system. The picture of such a child is more or less familiar to you all, the "mouth breather" with hanging lower jaw, heavy in countenance and slow of perception.

Likewise important are certain eye toubles which should be corrected as soon as possible. Many an acute eye disease, when taken early, will amount to nothing, but if allowed to continue untreated may prove a life long source of regret and impairment to the child.

The amount of work to be done in the respective schools varies greatly. Schools located in the congested or "foreign ele-

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ment" districts present problems totally different from those found in the schools situated, for example, off Euclid Avenue. Considering the home conditions of these pupils in the crowded tenement districts, it is no wonder there is disease. The wonder really is that there is not more.

It has long been a recognized fact that segregation of children in schools affords most favorable conditions for the transmission of those contagious diseases usually associated with the period of child life.

The number of communicable diseases such as impetigo contagiosa, tinea, scabies, pediculosis, etc., was so great that the inspectors found that simply excluding the child, notifying the parents of the cause and requesting them to take the child to their family physician, was not sufficient. The child would remain out of school several days and return in about the same, if not in an exaggerated, condition. The excluded child would most likely be just the one who needed the influence of the school room. The inspector had thus accomplished nothing. Knowing how amenable to proper treatment such diseases were, he soon found himself washing off the lesions, removing the crusts or scabs and applying the ointment himself. As long as this was confined to a few pupils the inspector was able to administer personally to the children in this way. Soon, however, by proper room to room inspection and the discovery of new cases, the number increased until on some days as many as 40 to 50 children would be waiting for individual attention.

A year or more ago, the inspectors, through their Executive Committee, recommended to the Sanitation Committee of the Chamber of Commerce, by their invitation, a plan to be modeled after the New York system by which the work could be broadened and made more uniform. But at that time no definite action was taken by this Committee of the Chamber of Commerce except to look more thoroughly into the subject of school inspection.

The Board of Health had exhausted all its funds available for this work. The interest of the Board of Education was aroused through Director Orr and, as a result, Cleveland has installed a system which, I believe, does not exist in other cities, namely *School Dispensaries*. These are situated in the congested foreign element districts of the city. Two such dispensaries are now used and others are being equipped. It is the intention of the Board of Education to establish others throughout the city

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where they are most needed. A graduate nurse of the Visiting Nurses Association is in charge of the dispensary and is under the instructions of the school inspector. It is her duty to look after the children who need treatment for minor troubles, the children continuing at school. After school hours the nurses are required to visit those children who were absent, on account of exclusion, and when necessary, to instruct their parents as to the best methods of treatment. As a result 90% of the children, that otherwise would have been excluded, are enabled to continue in attendance and this has been accomplished without exposing any of the associated children to the dangers of infection.

The dispensaries are equipped with such appliances and instruments as are needed by the inspector for diagnosis, and such ointments, solutions, etc., as are required in the treatment of communicable diseases.

Under no circumstances is it the intention of either the Boards of Health and Education or the inspector to treat children in these school dispensaries except for such conditions as rightly come under the term of emergencies. They wish in no way to interfere with the work of the family physician but, on the contrary, to refer to him cases which, in all probability, otherwise would never come to his attention.

To anticipate and answer a direct question, Do school inspectors (or a school dispensary) interfere with the physician's private practise in that locality? No, but they are frequently the means of bringing many cases to him which he would not otherwise see. In every case, in which an abnormality in a child is found, the parents are notified and requested to take the child to their family physician. The nurse then "follows up" the case and reports on the home conditions of the child and the request is again urged.

A card record system is kept in the dispensaries of all such cases, showing the results of the examination by the inspector and of the inspection of the home conditions by the nurse. These cards are intended to follow the child through its school life and the information is confidential for the Boards of Health and Education.

If the conditions are such that a physician cannot be employed by the family, the child is advised to go, or be taken, to a nearby hospital dispensary. If all of these methods fail and the case is an urgent one, it may be considered one of "neglect"

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and be brought before the juvenile court. It has been found, however, in these schools of crowded districts that parents are willing and anxious to do the things suggested by the school authorities for the benefit of the child.

The Board of Education has very generously supplied the dispensaries with shower baths, soap, towels, etc. Cleanliness among school children is of tremendous importance. Parasites do not thrive where there is abundance of soap and water. The most careful and painstaking persons, in fact, the most cleanly, are sometimes affected, but that is a misfortune and not a fault. There is no disgrace in having a contagious skin disease. The disgrace lies solely in keeping it. It is said concerning pediculi of the head, even with good treatment, "The inspector may come and the nurse may go, but the nits seem to increase forever."

The inspection in the schools may be rightly divided into two classes. The first is an inspection for contagious and communicable diseases which protects the community as a whole. The second is one which will protect the individual child from physical deterioration, making the school process contribute to the physical welfare upon which the mental as well as moral development must depend. The first applies solely to powers invested in the Board of Health. The second more properly to the training, upbuilding and education of the child and therefore to the Board of Education.

These two boards, represented by Director Orr of the Board of Education and Supt. Cadwallader and Dr Friedrich of the Board of Health, have worked most harmoniously, in the way of school inspection and sanitation, for the welfare of the child. There is every reason to believe what has been accomplished in the past will be greatly increased in the future.

The Sanitation Committee of the Chamber of Commerce, through its Chairman, Dr H. G. Sherman, framed a bill which was indorsed by the Chamber and the Legislative Committee of the Academy of Medicine. This bill, though amended, passed both houses and is now a law. This gives to the Board of Education power legally to do the things, already attempted, here in Cleveland. It is the intention of the three organizations, Board of Education, Board of Health and Chamber of Commerce to broaden the school inspection of Cleveland, making the system more uniform and more beneficial.

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The work already has been well worth the money and effort expended. The future, therefore, holds bright promise of further possibilities. The physical well-being of our future citizens means an uplift in their value to themselves and to the State. Moral and physical degeneracy are closely correlated. In correcting the one we necessarily tend to eliminate the other and the ideal in view is that of giving the city of Cleveland the highest type of mental, moral and physical citizen.

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The Diagnosis and Treatment of Brain Tumor.

By ARNOLD PESKIND, M. D., Cleveland

(Continued from May issue)

TOPOGRAPHICAL DIAGNOSIS.

As the localization of brain tumors depends on the knowledge of anatomo-physiologic data, the functions of the brain will be cursorily summarized.

This should be prefaced, however, by the statement that tumors affecting the areas or paths of motor function do not always produce similar symptoms and that a tumor situated in the cortical area is accompanied by more pronounced symptoms of focal irritation than one in the subcortical or commissural parts. Growths affecting the cortex almost always cause, at first, irritative symptoms, characterized by local convulsive movements and epileptiform seizures. Later these cortical neoplasms cause monoplegias of various intensities and durations which ultimately become permanent. When the tumor is located in the subcortical regions, paralysis may supervene without any preceding convulsive outbursts and if these latter are present they may show themselves in an insignificant degree. It is not uncommon to meet growths in the subcortical region which simulate the effects produced by the secondary changes following local inflammations or hemorrhage and only through the presence or absence of the cardinal symptoms can a differential diagnosis be reached.

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Motor functions are ascribed to the opercular region of the frontal lobe (movements of the muscles of the trunk, associated movements of the head and face and motor speech centre in Broca's convolution); to the precentral region and paracentral lobule (muscles of the lower and upper limbs, face and tongue) and to the frontal centrum ovale and its conducting paths. Also to the anterior two-thirds of the corpus callosum and the anterior two-thirds of the internal capsule, which carry cortical impressions along the motor tracts to the crura, pons and medulla oblongata. Oculomotor functions are also ascribed to the corpora quadrigemina, but this is probably due to the proximity of the nucleus of this nerve in the aqueduct of Sylvius.

The cortical area of the central or Rolandic convolutions is the seat of sensomotor functions. Lesions of the following parts of the brain cause sensory disturbances: the Sylvian region of the frontal and temporal lobes and the parietal gyres. Then the sensory paths in the corona radiata which are traced to the optic thalami and which represent the sensory relay between the cortex and the sensory tracks in the peduncles, pons and the medulla oblongata; the callosal gyre; the posterior third of the corpus callosum; the posterior third of the internal capsule and the hyppocampal gyre.

Tumors affecting the sensory functions cause perversions and abolition of sensations such as hyperesthesia, paresthesia, dysesthesia, anesthesia, disturbances of tactile, thermic and algesic sense. Purely sensory disturbances without motor involvement are rare, as the sensory centers and paths are intermingled with, or are dorsad, and in close proximity, to the motor centers. Thus, sensory and motor phenomena appear at the same time or the one may supersede the other according to the seat of the initial lesion. The cortical centers for special sense are, at times, early encroached upon and attacks of tingling, numbness of certain parts, monoanesthesia or sensory Jacksonian epilepsy may be associated with brief loss of consciousness; various visceral sensory disturbances; deafness; verbal blindness, etc., while the motor centers may escape all injury.

The chief clinical characteristic of sensory disturbances of cortical origin is the incompleteness of the loss of sensation. The anesthesia affects the deeper rather than the superficial structures and has a predilection for the upper extremities, while the trunk and face are but rarely involved. All these are valuable data

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when one has to eliminate hysteria as a possible factor in the genesis of sensory perversions. The reflex functions of the brain are of two kinds: In one, the cerebral centers, whether cortical or subcortical, enter into the completion of the reflex arc, as in the scapular, abdominal, cremasteric, scrotal, gluteal, plantar, palpebral, palatal, conjunctival and anal reflexes. These are abolished only when the lesion destroys the cortical loop of the arc. The second kind of reflex function is due to a cerebral center dominating or inhibiting another subsidiary center situated lower down or caudad to it in the cerebrospinal axis. In this latter case the usual inhibitory function of the dominating center will lose its influence over the subsidiary center and exaggerated reflexes will appear. Of course, in extensive growths or with increased intracranial pressure from whatever cause, both the dominant and subsidiary centers may become involved and the second variety of reflex arc will also be interrupted. In some cases of brain lesion the tendon reflexes have been abolished, a phenomenon probably due to a coincident lesion of the posterior roots of the spinal cord. These higher reflex centers are distributed in the sensomotor areas, in the basal ganglia and cerebellum.

Visual affections in brain tumor: Normal vision depends on the integrity not only of the refractive media and other structures within the eyeball and the retinal nerve cells, but also on the uninterrupted continuity of the nerve paths from the discs to the visual centers in the cortex; thus a tumor may press upon, irritate or destroy either of the optic nerves, chiasm or optic tracts and thus partially or totally interfere with or prevent the conductivity of visual impressions. A growth may affect the primary or lower visual ganglia; the postgeniculate bodies; the pulvinar; the anterior corpora quadrigemina, or pregemina as they are now called; the tapetum; the optic radiation fibers which stream towards the calcarine fissure of the occipital lobe or toward the cortical center situated within this lobe itself, or which pass to the frontal or temporal lobes. These fibers convey visual functions from centers situated in the basal ganglia and cortical visual centers. The afferent fibers from the pregemina pass to the pons, thence to the middle cerebellar peduncle, to the central cerebellar nuclei and return efferent optic and oculomotor impressions to the red nucleus, to the corpora quadrigemina and probably reach the cerebral cortex by the rubrocortical fibers. Afferent and efferent fibers are also traced to the medulla and upper part

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of the spinal cord, the arc being closed within the cells of the basal ganglia. So-called psychical or cortical visual aberrations are absent so long as the injury involves only the lower basal ganglia but as soon as the cortical centers are invaded by the growth there will be in addition to bilateral homonymous hemianopsia, also verbal deafness, verbal blindness, optic aphasia, aphemia and, at times, visual hallucinations, etc.

It should also be remarked that visual disturbances are the more rapid, the more pronounced and the more complete, the nearer the growth lies to the optic discs, and that complete cortical blindness does not exist unless the growth presses on both occipital lobes at the same time, because the visual impressions from both retinae are represented in either hemisphere. In studying the influence of diseases on the course of the fibers in the visual paths, one is strongly impressed with the value of the exact knowledge of anatomy and physiology and with what there is yet to be discovered in the domain of research about this most complex organ, the brain.

Wernicke's sign, for example, shows that light, imperceptible in the hemianoptic field of vision, will still cause pupillary reactions because, while the cortical center is involved, the lower ganglia and the visual reflex arc is not interrupted.

The part of the brain concerned in audition is probably situated in the first temporal convolution along the fossa of Sylvius. Projection fibers pass the postgeniculate body, the postgemina and tegmentum, reaching the cerebellum by the vestibulocerebellar tract. Some fibers of the auditory nerves can be traced to the medulla oblongata.

Auditory disturbances are manifested by deafness, auditory hypocousis and paracousis, subjective noises, hallucinations, vertigo, verbal deafness, etc.

Perversions of olfactory and gustatory functions are frequently met with and are characterized by hallucinations, anosmia and ageusia, but the cortical areas involved in these manifestations are not certain.

That the brain is also the seat of various trophic functions need only be referred to here.

Our knowledge of the psychical or purely mental functions of the brain, which are attributed to the frontal convolutions, to the corpus callosum and to some other parts of the brain, since tumors in these locations usually manifest various psychical per-

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versions, is to this day a vast domain of speculation. This soft fatty mass, the seat of the mind and apparently so simple structurally, is as mysteriously complicated as the universe in which man is but an insignificant ion.

After this brief summary of the functions of the brain in health and their expression in disease, let us turn to our subject, that of topography or the localization of brain tumors. Tumors affecting the frontal lobe may remain latent for a long time. Early psychical disturbances, in addition to the general symptoms of tumor and the symptoms of focal irritation of the muscles of the trunk and of these for the associated movements of the eyes and head, are frequently encountered in growths involving the second and third frontal convolution or, as they are now named, the medifrontal and subfrontal gyres. A tumor in the latter situation, in the pars triangularis or Broca's cap will disturb the motor speech center and various gradations of motor aphasia will develop.

Tumors pressing on the orbital surface of this lobe will encroach upon the olfactory bulb and cause perversions or abolition of the sense of smell. The optic and motoroculi nerves may also become involved in growths in this situation. This is a great help in differentiating a form of ataxia, frontal ataxia, which is frequently associated with neoplasm of this part of the brain and which resembles the ataxia of cerebellar origin. This symptom will be referred to again, mentioning here merely that this frontal ataxia is probably due to atony more than to a true incoördination.

Tumors of the precentral region, including the paracentral lobule, are chiefly characterized by focal sensomotor disturbances. The motor phenomena are the earliest to call attention to the impending danger threatening the patient. Early focal epileptiform convulsions result from the irritation of the tumor pressing on either of the motor zones of this region. Monoplegias, with or without monoanesthesias, are characteristic consequences of tumor destruction of this part of the cortex. It is not necessary to enter into the differential diagnosis of this Jacksonian form from the essential type of epilepsy, suffice it to say that consciousness is usually preserved. Astasia-abasia frequently accompanies tumors of the paracentral lobule and is probably due to the altered innervation of both lower limbs. The border line of either the frontal or parietal lobes may be in-

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volved and symptoms of a more extensive lesion will become apparent.

Tumors of the temporal lobes: Those situated in the left supratemporal gyre are usually accompanied by sensory aphasia, amnesia, aphasia and paraphasia, deafness or auditory hallucinations which may come like a distinct aura, hyperacousia, paracousia and complete word-deafness. Though pressure on the neighboring parts, growths of the sphenoidal part of the temporal lobe are specially liable to involve the crura cerebri and produce symptoms of paralysis. Tumors of the right temporal lobe may produce only general symptoms without any local or focal manifestations.

Tumors of the postcentral regions affect sensation and coördinate movement. Tumor of the supraparietal region is usually accompanied by astereognosis. Deeper sensory disturbances follow lesions of the lower parietal convolutions. Tumor of the angular gyre is accompanied by hemianopsia, probably as a result of the interference with the optic radiation fibers which pass through it in their course to and from the occipital lobe, and alexia and agraphia are met with in growths of this gyre. Growths of this region usually involve the internal capsule.

Tumors of the occipital lobe: Hemianopsia is an early symptom and is frequently associated with visual hallucinations and by scotoma. Psychical blindness was observed in some cases. Tumors have existed in this region without any symptoms whatsoever. Papillary stasis is said to be uncommon and the speech and other sensory disturbances observed in neoplasm of this lobe are probably produced by the encroachment of the growth upon the neighboring organs.

Tumors of the centrum ovale produce frequently no symptom at all, as the growth apparently dislodges the conducting fibers. When these latter fibers are affected, corresponding symptoms will result.

(*Continued in July Issue*)

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Note on Nitrous Oxid and Oxygen. Anesthesia in Comparison with Ether Anesthesia.

By GEO. W. CRILE, M. D., Cleveland.

Viewed from the clinical standpoint, there are several marked points of contrast between nitrous oxid and oxygen anesthesia and ether anesthesia.

In cases of acute pyogenic infections, the natural resistance or immunity of the patient seems to be materially impaired. This impairment is manifested in at least a goodly proportion of cases by a marked increase in the symptoms of infection, pulse rate, fever, and local signs. This often follows independent of the surgical procedure following nitrous oxid and oxygen anesthesia. Such exacerbation is rarely observed, granting of course, parallel conditions as to the type and stage of infection and the magnitude and technic of the operation performed.

As to the relation of these two anesthetics to surgical shock, observations have been made in operations upon all the important parts of the body, excepting the central nervous system and the thoracic viscera. There is quite certainly less shock under nitrous oxid and oxygen anesthesia. In certain handicapped cases, nitrous oxid and oxygen anesthesia, is strikingly safer than ether. Ether, on the other hand, assures a far better muscular relaxation and less venous congestion than nitrous oxid and oxygen. Nitrous oxid is not without danger, especially with reference to the suboxidation which, to a certain degree, seems as yet necessary under certain circumstances—male patients, alcoholics, obesity, etc. I have seen one instance of cardiac collapse. In nitrous oxid and oxygen anesthesia there is a very narrow margin between surgical and incomplete anesthesia. It requires far greater skill in administration. It is hoped that some investigation now in progress may throw some light on certain of the phenomena.

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The Cleveland
Medical Journal

CONTINUING { THE CLEVELAND MEDICAL GAZETTE and THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

The Official Organ of the Academy of Medicine of Cleveland

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EDITORIAL

The Blood Supply of the Basal Ganglia.

In a supplement to the *Boston Med. & Surg. Journ.*, Vol. CLX, No. 18, May 6, 1909, Mr. H. F. Aitkin, artist at the Massachusetts General Hospital, and Dr. James B. Ayer give a description of the blood supply of the corpus striatum, optic thalamus, and related structures which is considerably at variance with the views formerly held.

H. Duret's study of the cerebral circulation, made in 1872 to 1874, at the instigation of Charcot has furnished the basis of the description of the blood-vessels of the basal ganglia in practically all textbooks and monographs, and he has been regarded as an authority on the subject; indeed, with the exception of Heubner, no one else seems to have thoroughly investigated the matter. Heubner's short description, published in 1872, differs from Duret's, and the present writers agree largely with Heubner's description, which they have largely supplemented.

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Aitkin and Ayer, of whom the former has done most of the work, have made detailed examinations of 45 brains, and present the results in a series of excellent illustrations with short explanatory text.

The main differences from the statements of Duret are as follows: (1) In none of the brains was a lenticulo-optic artery found. (Heubner did not find this artery in 30 brains which he examined.) (2) The middle cerebral artery has not the predominant share in the blood supply of this region, for it supplies only the posterior part of the head of the caudate nucleus, the middle portion of the lenticular nucleus and internal capsule and to a slight extent the external capsule, sending no branches to the thalamus. (Duret stated that this artery supplies the whole internal capsule, the larger part of the caudate nucleus, the whole lenticular nucleus and part of the thalamus.) (3) The anterior cerebral artery equals in caliber the middle cerebral and supplies the head of the caudate nucleus, the globus pallidus and anterior third of the putamen, anterior portion of the internal capsule and to a slight extent the external capsule. (Duret stated that this vessel is smaller in caliber than the middle cerebral and does not supply the head of the caudate nucleus constantly.) (4) The posterior cerebral artery is not of more importance than the anterior.

An additional important finding, is that the anterior choroid branch of the internal carotid supplies the posterior third of the putamen to a slight extent and also the globus pallidus and inner portion of the internal capsule.

The results of the labors of Aitkin will be of much interest to the anatomist and clinician.

It is generally appreciated that many, indeed most of the pathologic conditions of the brain are due to vascular diseases and changes of various sorts and it is eminently desirable that we possess a correct knowledge of the arrangement and distribution of the vessels of the encephalon.

The *Boston Medical and Surgical Journal* is to be commended for publishing and distributing this valuable contribution to medical literature.

Significance of Colloid Goitre.

Some of the most interesting work which has been done of late on this subject has been in part reported and in part is still in progress in Cleveland. The most recent publication is by

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Marine and Lenhart in the Johns Hopkins Hospital Bulletin and deals with the relation of the ordinary or colloid goiter to the normal and hyperplastic gland. As is more or less generally known, the district along the southern shores of the lakes, and especially Lake Erie, is notable for the number of enlargements of the thyroid in both man and animals and is accordingly a most favorable place for the study of the disease. In a long series of carefully carried out operations, checked by chemical and histological examinations, the authors have come to some interesting conclusions. The work of Halsted and others indicates that removal of a part of the normal gland leads to hyperplasia and other reports show that the changes are associated with the presence or absence of an adequate quantity of iodin in the body, held in proper combination in the thyroid gland. Marine and Lenhart, in a previous communication, have shown that a hyperplasia may be found histologically and chemically to return to a comparatively normal type on the administration of iodin, and they have now tried the same experiments on the ordinary colloid goiter. They have shown that the iodin content of the colloid gland is nearest to that of the normal gland, that its histological picture is also the nearest and they have further shown that there may be all grades between the colloid and the hyperplastic. They have followed the process of hyperplasia and of reversion to the colloid in their experimental animals, to such an extent that they feel justified in stating that, as regards anatomical, chemical and biological characteristics, the colloid glands obey the laws of the normal glands. In other words, just as we know that a certain set of conditions will cause hyperplasia in the normal thyroid, and that the administration of iodin either directly or indirectly will lead to a disappearance of the hyperplasia and a reversion to the colloid condition, apparently functional, though enlarged, so the same set of conditions repeated in the same individual will cause a new hyperplasia of the reverted gland, either in whole or in part, which may again, by proper treatment, be made to return to the colloid type. This offers an explanation for the confused histological pictures one often sees when there is apparently a mixture of the colloid and the hyperplastic types and also shows the essential steps in the production of the enlarged glands associated with some multiple pregnancies when there is an increase in size at each pregnancy, progressive because, though the gland reverts to the colloid or functional type, it never goes back to the original size.

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So the conclusion naturally follows that the process is physiological and meets a want, rather than a pathological one, and is nature's nearest successful effort to restoration of a perfect function in the gland.

Recent Work on The Pituitary Body.

Since Marie published his first paper on acromegaly in 1889, the chief clinical interest in regard to the pituitary body has centered around the relation of tumors of the anterior lobe to this disease. Another symptom-complex, associated with enlargement of the pituitary body, that has attracted attention is Frolich's disease—a condition characterized by sexual infantilism and an increase of panniculus. Recently Herring *(Quarterly Journal of Experimental Physiology,* Vol. 1, pg. 121) on the basis of painstaking histological studies has advanced the theory that the epithelial portion of the pituitary furnishes a secretion which passes through certain stages of formation and that its production is merely completed by the neuroectodermic part, in which tissue the full activity of the secretion is acquired. He further claims that there is histological evidence of the passage of this secretion into the third ventricle to mix with the cerebrospinal fluid. Cramer, in the same publication as Herring (Vol. 1, pg. 189) has shown that strong extracts of the posterior lobe produce, within one or two hours, dilatation of the pupil of the enucleated frog's eye. To check the progressive blindness and to relieve the excessive headache in acromegaly, attempts have recently been made in several cases in London and Vienna to remove the enlarged hypophysis with some measure of success. Redford and Cushing *(Johns Hopkins Hospital Bulletin,* Vol. 20, pg. 105), realizing that it was somewhat premature to attempt such an operation without having some definite knowledge of the effect on the body of total hypophysectomy, undertook the study of this phase of the question by experiments on dogs. Of 20 operations on dogs for the removal of the hypophysis 15 were successful. These animals regained consciousness and behaved in a natural way until towards the end of the second day, when they became very lethargic. In some cases this state of lethargy set in earlier, in four instances it was postponed for four days and once as long as a week. From this lethargic condition they soon passed into coma with a striking incurvation of the spine, a slow respiration

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with a long drawn inspiratory act, a feeble pulse, a perfectly limp musculature, and often a subnormal temperature. The transition from this deep coma to death was almost imperceptible and unattended by a struggle of any kind. The subcutaneous administration of an infusion of a newly removed canine hypophysis had no appreciable effect on the condition of the animal. Post-mortem examinations were made in all cases, but revealed no adequate cause of death. These results sustain Paulesco's contention that a total hypophysectomy is incompatible with life. Redford and Cushing conclude from these experimental observations that the surgery of the hypophysis must be limited either to the removal of tumors which may implicate the pituitary gland, or in case of hypertrophy, to a partial hypophysectomy.

The Ohio State Meeting.

The annual meeting of the Ohio State Medical Association last month at Cincinnati was in all respects one of the most successful ever held. The attendance was excellent and well sustained until the closing hours of the session. The program was of unusual merit, the papers being above the average of past years. The sessions of the House of Delegates might with advantage precede the first day of the regular meeting as the deliberations of this body were prolonged so as to seriously interfere with the carrying out of the afternoon program. This may have been due either to the amount of business to come before the delegates or to the undue lengthening of the proceedings. A great deal of criticism has been aroused by the nature of the after-dinner speeches at the banquet. If this is not remedied at future meetings it will seriously detract from the dignity of the profession in the eyes of the laity. At a public dinner there is no excuse for such broadness as was manifested at this banquet. Many of the guests are entirely out of sympathy with this sort of thing and will absent themselves in the future if this objectionable feature is not remedied.

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Department of Therapeutics

Conducted by J. B. McGEE, M. D.

Addison's Disease: In the *Monthly Cyclopaedia and Medical Bulletin*, Chas. E. DeM. Sajous considers the use of adrenal extract in Addison's disease, asking: what can we expect from the use of adrenal extractives in this condition? He summarizes a series of 120 cases in which adrenal preparations in some form had been used; of these, 25 cases received permanent benefit, 36 showed marked improvement, in 51 the benefit was slight or nil and in 8 cases death might have been ascribed to their use. Analysis of these cases shows clearly that far better results can be obtained in the future by a careful adjustment of the dosage to the actual needs of each individual case and it is plain that our aim should be to supply only just enough adrenal extractive to compensate for the deficiency of adrenal secretion produced. It is astonishing with what a small proportion of the subject's own adrenals, the rest having been destroyed by organic disease, the vital processes will be sustained, Gourfein having shown that one-twentieth of both organs sufficed. The prevailing practise of giving a full dose of an adrenal preparation to begin with, and then pushing the remedy until enormous doses are given, is therefore most dangerous. The 25 cases of Addison's disease referred to, in which permanent benefit occurred, include one, treated by Bate, in which but 1-12 grain (0.005 gm.) of adrenal extract three times daily caused very great and lasting improvement with marked lessening of the bronzing. When the remedy could not be obtained temporarily, which occurred twice, the case relapsed. On the other hand, Suckling began with 10 grains daily, gradually increased to 175 grains daily, also with favorable results. That in Bate's case the adrenals were still almost able to carry on their functions is self evident, while in Suckling's patient the remedy practically compensated for the adrenals. The average dose is probably that used by Weigall in a very severe case, five grains increased to 10 grains of the extract, three times a day. On the whole the one great factor in these cases is to drop the *empirical* use of the adrenal preparations, the best results having been shown, as in the 25 cases mentioned above, when the doses employed coincided with the needs of the organism.

Permanganate Poisoning: J. C. Attix in the *New York Medical Journal* for May treats of poisons, giving as the best restricted definition of a poison:—any substance which, when taken into, applied to, or generated within the body in any considerable amount above the ordinarily prescribed or body-resistant dose, is capable of producing disease or death. He also states that all attempts to classify or group poisons have failed and calls attention to a poison which may be classed under several groups or heads:—escharotic, depressant, mineral or inorganic. This poison is permanganate of potassium. In none of the late works on toxicology consulted has he yet been able to find a reported case of poisoning by this drug and consequently no antidote for it. In one

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case six five grain tablets were taken at once, causing violent burning pain in the throat, esophagus, and stomach with shock, rapidly followed by unconsciousness. In the second case reported, nearly one-half ounce of the drug in saturated solution was swallowed and similar results followed. The pain from the burning and escharotic effects of the drug seems to be severe and in both cases collapse and unconsciousness came on very rapidly. In both cases dilute vinegar was administered first, since the salt is quite strongly alkaline in its reaction. In one case the stomach tube was employed and dilute ferrous sulphate solution and water were used alternately to wash out the stomach. The second patient was given, after the vinegar, sodium hyposulphite solution and then at frequent intervals one dram doses of sulphurous acid well diluted and later the same amount, three or four times a day for four days. No other treatment was used and the patients recovered rapidly. There are several antidotes which can be used with equally good results, viz., weak ferrous sulphate, sodium sulphite, sodium hyposulphite, oxalic acid and sulphurous acid. Oxalic acid should not be given unless it is definitely known how much permanganate has been taken and the exact molecular proportion needed, as it is itself poisonous and hence no excess should be given. The antidote indicated is sulphurous acid if it can be obtained since the permanganate is alkaline and sulphurous acid is acid, the permanganate is an oxidizing agent and sulphurous acid is a powerful reducing agent and sulphurous acid is not poisonous, an excess will do no harm and it acts very rapidly.

Therapeutics in Old Age: In *American Medicine* for April, Reynold Webb Wilcox reminds us that in the sleeplessness of old age hypnotics must be used sparingly. Probably the best is chloralformamid. A hot bath, 102 to 104° will succeed more often, and yield better results than any chemical hypnotic. To be avoided are hypnotics of the trional and veronal groups. Seven cases of hematoporphyrinuria caused by these drugs have occurred in the aged, so far as his observation goes. As regards the heart, almost every symptom which an adult can have is complained of by old people from precordial anxiety even to delirium cordis and true angina pectoris. In the treatment of these conditions vasodilators play an important role. The careful administration of thyroid extract will relieve high arterial tension, but that means a small dose to which a direct cardiac stimulant may or may not be added. Digitalis should never be used in the old on account of the marked spasm which its prolonged use tends to produce. Strophanthus is the drug of choice. Balfour lays great stress upon strychnin for the senile heart but Wilcox has obtained better results from caffein sodiobenzoate in moderate dose, not only as regards the relief of cardiac symptoms but in the improvement of the circulation. Arsenic iodid in small doses lessens to a marked degree the debility of the heart and iron certainly is of marked benefit. In the case of the lungs, coughing, wheezing and dyspnea are prominent symptoms. The important remedy in senile bronchitis especially and in other diseases of the lungs in the old is strychnin. In the early stages, particularly of pneumonias, the ammonium carbonate in frequent doses given in milk will usually relieve the condition without disturbing digestion. We can avoid constipation by physostigmin salicylate (eserin)

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at bedtime in 1-60 gr. dose, when other better known remedies fail. Phenolphthalein has been used by him for seven or eight years and with uniform success. Massage in connection with laxatives yields brilliant results. While relief of bladder symptoms belongs largely to surgery, hexamethylenamin will prove of great value.

Gout: In the *Medical Review of Reviews* for April, W. Carl Schoenijahn states that in the treatment of gout the use of medicines as a rule is reserved for the acute attack. In two words these would be expressed as alkalies and purgatives—the alkalies to produce more soluble combinations of the offending salts, the purgatives to aid in eliminating them as well as that which, in the bowels, often has acted as the irritating medium. Of the alkalies for this purpose salicylate of sodium is most lauded. This drug has a dual action. Its action in relieving the pain is somewhat slower than in rheumatism, but yet invaluable. Its other action is chemical and places it at the top of the list of drugs for gout. It is well to continue it in smaller doses after the acute symptoms subside. The salicylates should, during the acute attack, be pushed to 10 to 15 grains every two hours, or more if the stomach will stand it. Colchicum. formerly held the palm as an eliminative but must be acknowledged inferior to the salicylates. However its mode of action, it has been considered almost a specific. The aperients most commonly used are the salines of which magnesium sulphate is a type, while sodium sulphate is a favorite and the chief agent in active waters. Occasionally the pain in an acute attack of gout is so severe that we must have recourse to morphin. This he considers, theoretically at least, a dangerous drug as it directly opposes our object of elimination and is an injurious drug when the patient has contracted kidneys, which are so often present in gouty subjects. As for the local treatment of an acutely inflamed joint, heat and moisture are most apt to be beneficial. He personally vouches for a procedure of loosely wrapping the joint in absorbent cotton and keeping it moistened with a hot saturated solution of chloral. A milk diet or one consisting mainly of milk should always be given. Between attacks careful prophylaxis should be observed. To influence the diathesis itself we rely on abstinence from excesses but chiefly on active exercise.

Rheumatism: In the *Medical Record* for May 8, Le Grand Kerr, asserts that acute rheumatism in children is entirely different in all its clinical aspects from the same disease in adult life. The chief object of treatment in the child is the prevention of cardiac changes. Among the non-articular manifestations of the disease important for an early recognition is tonsillitis, as fully a third of these cases are rheumatic in character. In children under two years the occurrence of rheumatism is possible, but highly improbable. The therapeutic indications are absolute rest, both mental and physical, the avoidance of solid food for a few days and absolute abstinence from all meat or meat extractives for a few days, sugar should be restricted to the lowest possible amount or saccharin used in its stead. The salicylates occupy a well-deserved place in the treatment of the disease, but their use cannot be long continued with a child because of their tendency to disturb digestion. Salicin

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is less objectionable and can be readily given in the dose of one grain for each year of the child's age repeated every three hours. Along with the salicylates or immediately following their discontinuance, bicarbonate of sodium should be given. He emphasizes the importance of rest in the care of the rheumatic child, as the responsibility of the physician does not end with the diagnosis and treatment of an individual case. If there are other children in the family they should be protected. The parents must be made to realize that what to them seems a slight illness, may be but the beginning of a disease which will limit the usefulness of the child, narrow its activities or possibly result in its premature death.

Sodium Silicate: *Merck's Archives* for April notes an article by Dr. Sheffer in which he advises the treatment of arteriosclerosis by sodium silicate. The fact which attracts most attention in the patients treated with sodium silicate is the lowering of the arterial tension when hypertension exists. After 15 to 30 days of silicate treatment, the lowering of the arterial pressure is almost constant and remains normal or even slightly subnormal so long as the remedy continues to be absorbed. On ceasing treatment the hypertension recurs but slowly and the time required varies in each particular case. Symptoms pointing to cerebral arteriosclerosis, vertigo and cephalalgia are those most rapidly improved even when no arterial hypertension is present, which goes to prove that the efficacy of the remedy is not due solely to its action on the arterial pressure. The value of the silicate treatment is very noticeable in attacks of angina pectoris and dyspnea due to effort. The drug is given in the form in which it is marketed, a solution of which he gives 1.5 to 3 cc. per day well diluted in milk or water and preferably at meals. The usual regimen prescribed in arteriosclerosis should, of course, be followed.

Thiosinamin: In the April number of the *Therapeutic Gazette (Boston Medical & Surgical Journal)* Tyrode writes upon thiosinamin, a derivation of oil of mustard, introduced as a remedy for lupus by Hebra who claimed that it had a beneficial influence and obviated the formation of scars in several cases which he reported. From that time to the present this drug has been used by different clinicians for the removal of scar tissue in various parts of the body in such troubles as strictures of the esophagus, intestine and urethra. The results reported have been both favorable and adverse. Thiosinamin undoubtedly produces a profound effect upon the general metabolism when given in sufficient doses. If thiosinamin has the power of dissolving scar tissue, we should rather expect some action on normal connective tissue, which has not been the case. In view of the marked poisonous action upon animals and also of the reported cases of poisoning in man, the writer recommends that in practise thiosinamin be used only with great caution and in very small doses. He summarizes its effects as follows: (1) Marked depression of respiration which causes death in warm-blooded animals. This depression is sometimes accompanied by edema of the lungs and marked congestion, especially if the process of dying has been prolonged. (2) No influence on blood-pressure. In acute experiments in rabbits the heart is still very

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strong when the respiration stops. The heart in frogs is weakened and stopped only by very large amounts applied directly to the organ. (3) Profound changes in the metabolism, consisting in rapid loss of weight with increased proteid combustion and general fatty degeneration of the different parenchymatous organs, especially of the heart, and kidneys. The heart was so fatty in some instances that its weakness may explain some of the edema and congestion seen in animals dying after several days' poisoning.

Digitalis: Robert Tissot in the *American Journal of Clinical Medicine* for May, writes concerning digitalis that at the present time it is not employed as frequently, as methodically or as energetically as it ought to be. The effects of digitalis vary greatly with the doses chosen. It is necessary to make, with Huchard, these distinctions: The anti-asystolic or massive dose which is 1 gm. of the leaves or 1 mg. of digitoxin given in two portions in a day. Such a dose should not be repeated until after 15 or 20 days. The indications for this dose are insufficiency of the heart, whether or not accompanied by edema or vascular stasis, the infectious maladies in which the heart is endangered and chlorosis. The cardiotonic and sedative dose of Huchard is 0.25 mg. of digitoxin per day for three or four days and this dose may be repeated every 20 or 30 days. It calms the heart, and is of value in those cases in which the quality of the cardiac fiber has changed slightly (dilation of the heart in recent valvular affections, obesity and cardiopathies of the menopause). It is a good plan to give this dose before surgical intervention. The continuous cardiotonic dose of Huchard is 0.1 mg. of digitoxin per day for 10 days in a month or 0.2 mg. for four or five days a month. This dose is employed in the majority of the advanced valvular affections and in arterial cardiopathies. It is also useful and of great advantage in mitral regurgitation. In this disease, so often associated wth dyspnea, the digitalin ought to be given systematically in maintaining cardiotonic dosage. The arterial cardiopathies and senile affections of the heart do well under these small doses whch do not whip up too strongly the central organ but exercise upon it a mild and continuous stimulation. When the myocardial lesion is accompanied by a valvular lesion the cardiac difficulty is greater and it is often necessary to give the digitoxin in doses of 0.2 mg. continued for five days to obtain the effect.

Veronal in Mental Disease: In the *Postgraduate* for Jan. (*Le Bull. Med.* Quebec) Roy found veronal useful in the insomnia of psychoneuroses and most mental diseases. In two cases of acute maniacal excitement, in which the other hypnotics had proved unreliable in their action, veronal produced a calm and refreshing sleep of four to six hours' duration. The same results were obtained in the case of an insane patient who, during periods of excitement, had shown himself refractory to the action of other hypnotics. The doses in these cases varied from 15 to 25 grains, the results consisting in an abatement of the symptoms of excitement showing that this drug, besides its hypnotic qualities, has a marked sedative effect upon the cerebrum. In melancholic depression and in neurasthenia and hypochondriasis it promptly produced

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a natural sleep of six hours' duration, the dose employed being not greater than 10 or 15 grains in the majority of cases. Among other medicaments of its kind (sulphonal, trional, etc.) veronal has the advantage of being rapidly absorbed and Roy has never found its effect delayed over half an hour. The slightly bitter taste can be readily concealed and this ease of administration is an advantage in the treatment of demented subjects, especially as one is often obliged to resort to some subterfuge or ruse in order to make the dose acceptable to patients who are not guided by reason. The sleep produced by veronal approaches the normal physiologically and it is only exceptionally followed by slight malaise on awakening. In brief, it is a remedy which is destined to become a valuable agent in the treatment of mental and nervous diseases. Its field of action does not seem to be limited to its hypnotic properties: it manifests at the same time a particularly sedative effect in conditions of cerebral excitement.

Academy of Medicine of Cleveland

The sixty-sixth regular meeting was held at the Cleveland Medical Library, April 16, 1909, the President, W. E. Lower, in the chair.

The report of the previous meeting of the Council was read by the Secretary and was, in part, as follows:

The Council of the Academy of Medicine met Friday, April 2, 1909, at the Hof-Brau House.

The following applicants were elected to active membership: Archibald Dawson, Wm. R. Boyd, Carl L. McDonald, Sylvan L. Haas, W. B. Rasing, A. E. Bohm and George N. Stewart: to associate membership, Charles W. Chestnutt, attorney.

The following names of applicants were ordered published: Arthur Thompson Carter and Charles Joseph Albl.

A communication from the Secretary of the Antituberculosis League was read and after discussion it was voted that, *whereas,* the Council of the Academy of Medicine recognizes the urgent need of a tuberculosis sanatorium in Cleveland, *Therefore be it resolved,* that the Council approves of the construction of such an institution.

A communication from R. H. Birge concerning the personnel of the staff of the Huron Street Hospital was received. After a thorough discussion it was voted that the communication be laid on the table.

The Secretary communicated certain facts concerning the relations of the Bankers' Identification Company and the medical profession of the city, and after discussion it was voted that the Secretary take up the question of written communications to the entire profession with the Attorney of the Academy.

It was voted that the Council of the Academy of Medicine approve the amendment to the Constitution of the Ohio State Medical Association as follows,—Article 8, Sec. 2, Para. 2, The Secretary and Treasurer shall be elected for terms of five years, the Councillors shall be elected for terms of three years, Councillors being divided into classes so that four shall be elected each year, (a proposed amendment of the by-laws provided for 12 Councillors).

The program was as follows:

1. The Treatment of Chronic Intestinal Autointoxication, Frederick Forchheimer, M. D., Cincinnati. Appearing in full on page 307).

J. P. Sawyer, in the discussion, said that if autointoxication were due to the fermentation of food in the intestine poisoning the body, it would be easy to drive out the offending fermenting substance, but if the cells

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of the body were held responsible for not performing their normal function it was a more difficult matter to regulate their metabolic activities to a normal condition. The main indication in autointoxication was to provide favorable conditions so that the body cells might act normally. Many of the cases were due to early disturbances of gastric function and many instances of autointoxication were corrected by regulating the gastric action. The substitution of the bacteria causing putrefaction by those of the lactic acid-forming group deserved consideration: such a measure might be both safe and advisable. Benzosol, menthol and the salicylic preparations he had used and found useful. Bismuth salicylate was specially valuable but not invariably so. A great deal was to be gained in enforcing physiologic rest by giving the simplest diet such as milk foods, buttermilk or peptonized milk. The time of patients was thus saved in effecting a cure.

N. Rosewater said that indicanuria was a very uncertain index of the severity of the intoxication. A great deal might be found with very few disturbances or very little with very marked symptoms. It was incorrect to use the term autointoxication for a simple mechanical obstruction of the bowel from an impacted stool. Thus the immediate arrest of a child's convulsions after a bowel movement was purely mechanical and not due to the lessening of an intoxication. These mechanical effects might be explained by circulatory conditions caused by pressure symptoms. He had been disappointed with bacillary preparations, any improvement due to them being usually temporary. Drugs were useful, especially those which had been mentioned. He had found liquid petrolatum especially valuable in these intestinal conditions.

E. S. Hannum said that he found mercury particularly valuable in such conditions. Salol with wintergreen oil also made a very pleasant and useful combination.

R. E. Ruedy said that the nervous symptoms from autointoxication were often the forerunner of mental disturbance and therefore demanded attention so as to ward off any incipient insanity.

M. J. Lichty said that without care, one might diagnose this condition too frequently, but fail to look for lesions of the gall-bladder, appendix or pelvic organs; indeed it was very easy to cover up a correct diagnosis of an underlying condition, e. g., chronic appendicitis, by calling the trouble autointoxication. In a certain number of such cases, the autointoxication would recur even after the removal of the exciting cause. The term autointoxication should, therefore, not be employed as a blanket to cover up an incorrect diagnosis nor yet should it be ignored. Edsall's work showed that intestinal antisepsis was a prominent factor in reducing the number of bacteria in the intestines.

2. The Surgical Aspects of Goiter, Albert J. Ochsner, M. D., Chicago.

The paper brought out only such points as should be uppermost in the mind of the practical in conducting the treatment of patients suffering from exophthalmic goiter. It discussed the diagnosis and symptomatology and gave a concise description of the consecutive steps of the operative treatment, laying especial stress upon the precautions which were necessary in order to make the operation relatively very safe. The mortality due to operation was very slight in all cases in which not too much time had been spent in useless medical treatment. Many cases would recover under medical treatment, but those that did not should be operated upon early, especially before the heart and nervous system had been hopelessly ruined. This was true especially of cases which improved temporarily under internal treatment, only to get worse than ever in a short time. The following conclusions were submitted:

1. The diagnosis of cases of exophthalmic goiter, suitable for surgical treatment, was relatively easy and should be made early.

2. All cases of exophthalmic goiter which were not relieved permanently by rest, hygienic and dietetic and medicinal treatment should be treated surgically before there had been irreparable harm done to important structures.

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3. This was especially to be borne in mind in connection with a class of cases that responded readily to non-surgical treatment only to relapse at once upon the slightest strain.

4. The dangers in the operation depended largely upon the harm done by the disease before the operation.

5. These dangers could be eliminated by early operation and by preliminary treatment with rest, hygiene and diet.

6. The operative danger lay in the anesthetic, sepsis, acute hyperthyroidism, tetany, cachexia strumipriva, injury to the recurrent laryngeal nerves, hemorrhage and shock.

7. All of these dangers could be eliminated easily with reasonable skill and attention to details.

8. The patient should receive carefully directed aftertreatment with rest, hygienic measures and suitable diet, especially until the blood, the nervous system and the heart had thoroughly recovered from the effects of the disease.

9. All psychic excitation should be prevented before, and for a long time after, the operation.

G. W. Crile, in the discussion, said that the paper gave the impression that the operation was a very easy one and if one had the opportunity of visiting the speaker's clinics he would see the procedure carried out in a masterly way. There were cases with acute intoxication that offered very serious problems in the operation, but the greatest problem at present was how to manage the hyperthyroidism following operation. If there were some way to secure a patient's safety for 24 hours after the operation, the surgical treatment would be an easy matter. One group of cases were very difficult to manage, viz.: those with profound intoxication, as shown by delirium, edema of the extremities, etc. With such patients there was no hope from surgical measures; the mortality rate from the simple ligation of the superior thyroid artery in such patients was as high as from the complete removal of the gland in milder cases. The right time to operate was before the patient's condition had been seriously impaired.

F. E. Bunts said that the technic of the operation as described made the procedure seem so simple that it encouraged the hope for better results in the future.

N. Rosewater suggested that since the giving of meat to thyroidectomized animals meant death while a milk diet seemed safe, it would seem advisable to avoid any meat in the diet after thyroid operations.

J. P. Sawyer pointed out that in reports of surgical treatment for goiter the statement was often made that medical treatment had been tried but had failed. The question was, what medical treament had been tried? While the surgical procedure was, as a rule, well defined, the medical treatment was very varied. Until the correct medical treatment became more clearly defined the dividing line between surgical and medical cases could not be accurately determined. Not only should the percent of cures after operation be shown by surgeons, but the persistency of the cure from surgical measures must be determined before a comparison could be made between surgical and medical treatment. Surgical reports might well specify the measures used in the medical treatments classed as failures.

A. R. Baker had seen the most severe cases, wildly delirious and with the most intense intoxication, recover completely without operative measures. Permanent cures could occur even after repeated attacks and the most severe cases could recover, temporarily, at least, with rest, hygienic measures, etc., and without surgical aid.

A Ochsner, in conclusion, said that the severe hyperthyroidism might be due to either of two conditions or a combination of these two. In some cases the hyperthyroidism had existed so long that the myocardium had been seriously affected and the blood hopelessly ruined. Surgical measures were then inadvisable, as the patient might not have enough

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resistance to stand the operation. The other condition was an acute intoxication due to very intense psychic excitation. In certain of these severe cases the heart muscle was only temporarily affected and could soon return to a nearly normal condition when complacency returned. The development of postoperative hyperthyroidism could best be avoided by absolutely controlling hemorrhage and by being extremely gentle in all manipulations. He had given up using a gauze drain and since adopting these precautions he had had no postoperative hyperthyroidism. The subcutaneous infusion of large quantities of salt solution, every three hours, had been found useful in treating the toxic symptoms. The treatment preliminary to operation was most important. There was no unanimity of opinion as to the value of any special drug. Absolute rest for the sake of the exhausted and damaged heart muscle and the avoidance of excitement, so as not to discharge an abnormal quantity of thyroid secretion, were indicated, also quieting measures such as baths and an appropriate diet.

OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The forty-first meeting of this section was held at the Cleveland Medical Library, Friday, April 23, 1909, J. N. Lenker in the chair.

A. R. Baker presented a man, aged 53, who had been first seen in 1901. The patient had had defective vision all his life, probably due to congenital cataract; he also had marked nystagmus. Some years previously he had had an injury to the left eye. The lens became cataractous and shrunken with adhesions of the iris. There was also a beginning cataract in the right eye. The left lens was needled and later an iridectomy, downward and outward, was performed for optical purposes. About one year later the lens was extracted from the right eye. Vision in the left eye gradually failed and about two years ago he became entirely blind in it. A few months ago vision began failing in the right eye. With rest in bed and large doses of potassium iodid, vision improved but later failed again. He had a large amount of astigmatism and this, combined with the nystagmus, made it very difficult to determine the exact condition of the fundus although at times it looked as if there might be a slight detachment of the retina. Tension of O. S. was + but no definite increase in tension of O. D. could be made out. The patient gave a specific history of 15 years' standing and the knee-jerks were absent. It was not definitely known whether this was a case of simple chronic glaucoma, gray atrophy of the nerve or detachment of the retina.

J. N. Lenker presented a boy 17 years of age with a large nasofibroma of four years' duration. There was a lobule completely filling the nasal cavity and nasopharynx on the left side, and also a lobule extending into the cheek.

W. B. Chamberlin presented a specimen of papilloma removed from the base of the tongue. The patient had complained of feeling a foreign body in the throat for the last three weeks, and a mass could be seen pressing on the epiglottis. The tumor was removed with the snare.

MEDICOLEGAL SECTION

The second meeting of this section was held at the Cleveland Medical Library, April 30, 1909, Judge Hadden in the chair.

The program was as follows:

1. The Medical Expert Witness, D. C. Westenhaver, LL. B. (Appearing in full on page 327).

T. A. Burke, in the discussion, said that if expert medical testimony could be placed on a satisfactory basis it would redound to the credit of both professions. The legal aspect of the matter had been well presented in the paper, but he was not prepared to accept all the conclusions. The

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difficulty with the hypothetical question was that while it was supposed to contain all the factors in the case, very often some of these, of relatively great importance, were supported by very flimsy evidence, while others of small moment were the only ones that could be considered proved. In putting apparently the same question to a second witness some of the premises would be slightly altered and a different answer from that of the first witness would be given, thus discrediting the testimony of both. A medical witness called by one side was naturally biased, that was only human nature. To avoid this partisanship the experts should be called by the court. If they could not agree a majority report might be submitted and any defects in this could be shown up on cross-examination. The value of such a procedure had recently been demonstrated here in a murder trial. The question of compensation need not be discussed except to state that it should not be cheapened; competent men were required and they should be adequately remunerated.

Attorney S. Melvin Roberts was convinced that medical expert testimony was now given very little weight by the judge, attorneys or jury. There was no doubt that expert medical testimony was needed, but, at present, intense partisanship played too prominent a part. The difficulty was not all due to the doctors, as was shown in a recent case in which the medical testimony of the two sides was diametrically opposed. Previous to the trial the experts in this case had examined the patient together, but on their attempting to discuss it and thus to arrive at some uniform conclusion, one of the attorneys present objected, saying that their respective views could be given in court. Both doctors and lawyers were being criticised by the public for the ill repute of expert medical testimony and juries did not pay much attention to it, but usually disregarded it in deciding the case. Some method must be devised to eliminate partisanship and no other body could take this action more advantageously than this medicolegal section; it should place itself on record in attempting to correct the evil. This might be effected through legislation and he would move that the chair appoint a committee of five to study the different plans that might seem advisable in changing the existing state of affairs and to report back to this section.

Attorney Harry F. Payer expressed wonder that the medical expert should be abused with such complacency by lawyers. When analyzed, he argued, the complaint made against medical experts was that they frequently differed in their opinions or diagnoses; yet, every day lawyers themselves were found differing even upon rudimentary propositions of law, and how much more justification for a difference of opinion was there when the human body and its infinitude of operations was concerned.

Very often when doctors testified upon different sides of a cause, they appeared to differ in opinion—when there was no real difference of opinion, except such as necessarily arose from the fact that the hypothetical question, whereon the medical expert must predicate his opinion, differed radically from the hypothetical question that was submitted to the expert on the other side; this was because the law authorized counsel to propound to the medical expert a hypothetical question that incorporated only that view of the case which had been sustained by evidence on his side. Was it then strange that a medical expert having one major premise and one minor premise upon which to base his conclusion should differ from another medical expert to whom was submitted a wholly different major premise and minor premise? Not infrequently an apparent conflict of testimony was disclosed which emanated from no inherent difference of opinion on the part of the medical expert, but from the adroitness of the attorney in eliminating from his question certain essential elements, the omission of which the jury frequently did not detect and was thereby led to the erroneous conclusion that expert testimony was infirm because doctors could not agree.

It should not be forgotten that the domain of expert testimony was not monopolized by medical men. Real estate experts and mechanical

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experts were frequently called to testify. In a recent condemnation proceeding a number of real estate experts testified that a certain piece of property was worth but $800.00, while an equal number on the other side testified it was worth $50,000.00. Each side was looking upon the property from a different point of view. So, mechanical experts frequently differ in regard to the wisdom of employing a certain method or using a certain machine, or in regard to the cause of a certain accident, and yet no such imputation of unfairness and bad faith was heard as had just been made against the medical expert. Of course, there were always exceptions to the rule, but he believed that the medical expert was the fairest and the least partisan; and those who had had experience in that class of cases in which the medical expert was so frequently called, could testify that the integrity of the medical expert and his honesty in expressing his view of a given case many times brought about a settlement of claims outside of court. He believed that lawyers had no right to constitute themselves judges of the medical profession. The ideals of the medical profession were just as high as legal ideals were, and, if lawyers would determine to be fair in their cross-examination of the medical expert and elevate the standard of cross-examination, he was confident that the indiscriminate condemnation of the medical expert would cease and lawyers themselves would come to the conclusion that they had, in substantial measure at least, been responsible for the alleged abuse that they had criticised.

Attorney S. Melvin Roberts, in reply, said that the previous speaker had diverted attention from the real issue. Lawyers, of course, usually disagree. Many questions put to the doctor on the stand were unfair and many hypothetical questions were unfair. The system and not the individual was at fault. Medical experts were often given direct instead of hypothetical questions, such as "What is your diagnosis of this case?" and yet one would reply "multiple sclerosis" and another "arteriosclerosis." Again one would testify that urinary analysis showed no albumin and that the patient's kidneys were normal while another would say that there was albuminuria and that the patient had chronic Bright's disease: two diametrically opposed views based upon such a simple thing as urinalysis. Doctors were only human and naturally inclined to the side calling them. Any new plan of procedure should attempt to eliminate this unconscious bias and the experts should testify for the knowledge of the court and not specially for their own side. Even when the experts were appointed by the court they need not necessarily agree, but even if a minority dissented, the report would at least be honest. He did not wish to denounce the medical profession, but merely the present system of procedure in medicolegal cases.

R. K. Updegraff pointed out that in the instances quoted in which the experts apparently disagreed both might have been right. A patient might have both multiple sclerosis and arteriosclerosis and it might be a matter of opinion as to which was most responsible for the symptoms. Again a patient might have albumin and casts in the urine at one time and not at another, and a case of chronic nephritis might show absolutely no albuminuria.

H. G. Sherman said that a physician usually felt that in court he was denied the privilege of telling the whole truth. The honest witness was a dangerous witness to one side or the other, and therefore he was prevented from telling the whole truth by constant interruptions or objections by the attorneys. An eminent English jurist had said that the impression he had received was that American legal procedure was not directed toward upholding the law, but rather to devise ways for evading it. There was one way to avoid being called as an expert and that was not to know anything if called. This advice had been given him by a legal friend. The compensation for experts should be fair. The only honorable method for appointing experts was for the court to select a commission from a list of names submitted by a reputable medical society. He was in favor of the motion now before the meeting and hoped it would pass.

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Attorney W. A. Carey thought that the whole trouble was the partisanship of the doctors. This was usually caused by the lawyers' suggesting to the doctors to testify so as to favor the side calling them rather than to give a candid opinion. In the first place the legal profession should be more fair in dealing with the doctors and be more careful in employing the hypothetical question. He hoped the motion under consideration would prevail.

Attorney R. B. Newcomb said that the trouble with the medical expert often began when the company's claim agent or lawyer asked him to examine a certain patient, and then deliberately suggested that the patient was trying to obtain damages when he did not deserve them: thus the doctor was prejudiced from the start. Biased medical testimony was useless as it was not considered by the jury. The more partisan the evidence, the less weight it had. Some corporations were at fault in expecting their surgeons to minimize the effects of any injuries sustained by their employees, whereas there should be a distinct understanding that the surgeon should express his honest opinion whether to the disadvantage of the company or not. Any doctor who attempted to inflate an injury harmed not only himself and his profession, but wronged the attorney for the injured man because such law practise was short lived. The doctor should have sufficient moral courage to say exactly what he believed, leaving the consequences to take care of themselves. That policy would soon educate the legal profession in the way it should go and largely remove the stigma that attached to the expert medical witness.

N. Rosewater thought that the evil lay in the lawyer's ascertaining in advance what testimony the expert might be willing to give and calling only those who would support that side. An expert should really be an expert and not merely anyone who would give testimony satisfactory to the lawyer.

R. E. Ruedy said that the present system of calling experts was radically wrong. The man who was to testify should be competent and his opinion should be substantiated by his reasons, which he should express freely. The average lawyer was not sufficiently familiar with the subject to properly estimate the weight of the medical evidence and to appreciate its apparent inconsistencies. Medicine was not an exact science, no one was infallible, and there was a large personal equation in forming an opinion on a medical case: a man could but do his best. The chief value of the physician was in instructing the lawyer out of court as to the medical points at issue.

E. O. Houck thought it unfair to ask a medical man, testifying as an ordinary witness, to quote authorities. These differed on many questions and the physician's information was gathered from a great variety of sources.

Attorney D. C. Westenhaver in conclusion said that all the discussion confirmed his contentions and that there had been no disagreement. The defects of expert medical testimony simply called for a higher ethical standard for their correction. The attitude of the witness should not be the same as that of the lawyers, who had to bring out everything favorable for their own sides. Lawyers had to disagree, but it seemed the hardest thing in the world for the witness to adhere to the truth, for which purpose he was supposedly called. Some of the objections that had been raised were well recognized as being true in regard to the procedure of the English Common Law. There had always been certain trouble with this procedure; he was not defending it nor could he suggest any other better. With the present system each side was authorized to bring in its own partisan witnesses to set forth the evidence for that side as strongly as possible. So long as that plan was in vogue a great many allowances must be made. The fault with the medical expert was that he took the stand as a partisan witness. The only hope lay in the general uplift in the character of the medical expert testimony, unless some radical change in the procedure was made, which seemed to him inadvisable. He could find just as many faults in trial by jury as anyone and the points brought out

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against it in the discussion were perfectly true. At the same time he disapproved of the commission plan of medical evidence and of leaving the decision entirely to the judges, since they were not infallible and the personal equation played too prominent a part. He sympathized with the sensitiveness of medical men to the nature of the cross-examination to which they were often submitted.

The motion before the meeting, having been put to a vote, was decided lost.

2. The Use of the Skiagraph in Litigation, R. B. Newcomb, M. D., LL. B. (To appear in full in the Journal).

3. Technic of Medicolegal Skiagraphy, with Stereopticon Views of Radiographs, I. LeFevre, M. D.

Illustrations of the apparatus used for this purpose were shown and explanations of their method of use were made. A number of skiagraphs showing conditions such as might be presented in medicolegal cases were exhibited.

CLINICAL AND PATHOLOGICAL SECTION

The sixtieth regular meeting was held at the Cleveland Medical Library, Monday, May 10, 1909, W. B. Laffer in the chair.

The program was as follows:

1. Fracture of the Anterior Superior Spine of the Ilium by Muscular Contraction, with Review of the Literature, J. H. McHenry. (To appear in full in the Journal.)

2. Hallux Valgus and Bunions, George I. Bauman. (To appear in full in the Journal.)

3. The Three Days' Treatment of Drug and Alcohol Habitués with Hyoscin, H. V. Riewel.

The properties of hyoscin were first described with notes on the susceptibility and tolerance to it, as sometimes observed. A resumé of the literature, together with some statistics obtained from personal communications, dealing with the treatment of drug habits with hyoscin followed; these figures representing altogether over 1100 cases. The method employed by the writer was as follows: Alcoholic cases were treated at their homes under the care of competent attendants. Enough hyoscin was given by mouth for the first eight days to keep the mouth dry and the pupils dilated, e. g. hyoscin 1-100 to 1-50 gr., atropin 1-500 gr. and strychnin 1-60 to 1-30 gr. every two to four hours. On the eighth and ninth days the drug was given hypodermically in sufficient amount to produce mild delirium. Ten cases of alcoholism were treated and four had not relapsed to date. The longest period of abstinence had been over three years: two had abstained for nine and one for six months. In the six relapsed cases the shortest period before relapse was three months: in all of these the relapse had been due not to a craving for drink, but because the patient wished to be sociable.

Ten morphin cases had been successfully treated by this method. As an illustration, the treatment of one case was described in detail. The patient had taken morphin for eight years and was taking 16 gr. hypodermically every 24 hours. Hyoscin hydrobromate 1-200 gr., atropin 1-600 gr. and strychnin 1-200 gr. were given hypodermically every one and one-half hours for eight doses; then one-half this dose was given at the same intervals for six doses. Then followed 12 full doses every one and one-half hours, and finally two half doses. Altogether, hyoscin 1-4 gr., strychnin 1-4 gr. and atropin 1-24 gr. were given. After the first week the patients usually slept well and ate ravenously. The insomnia, sometimes seen at first, was relieved by trional, chloral or bromids. At no time was there any craving for morphin, pain or suffering after the withdrawal of the drug. The delirium produced by the hyoscin should be controlled lest it

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become too severe; morphin 1-4 gr. would effect this and not interfere with the treatment. Hyoscin seemed to slow the pulse in nearly all cases, the rate being usually 55 to 80. The character of the delusions and illusions of the delirium were then described. A report of acute opium poisoning in a three months' old baby, successfully treated with hyoscin, was also given. The following conclusions were reached:

(1) The hyoscin treatment would eliminate the desire of drug and liquor habitués for these drugs, thus eliminating the element which prevented the patient's abstaining by force of will power.

(2) That having lost the desire they did very well without intoxicants or the drugs, as shown by the increase in appetite, gain in flesh and their general improvement.

(3) The question of relapse lay entirely in the sincerity and environment of the patient.

(4) The favorable alcoholic addicts were those who earnestly desired to discontinue the use of intoxicants and were willing to change their mode of living and environment; but who could not until relieved of the craving for liquor.

(5) Relapse in both drug and liquor cases was not due to a desire nor to suffering after the treatment, but to the curiosity of the patient to test the necessity of total abstinence, or to the temptations of social life.

(6) That a single dose of the drug or drink of liquor, even after one year of total abstinence, was very apt to start the craving, resulting in a condition which was no better than that before treatment.

(7) This method might prove a valuable treatment for apparently hopeless cases of opium poisoning. Interesting experiments along this line might be carried out.

(8) The one contraindication for this treatment was the presence of Bright's disease.

(9) That no case should be treated unless put to bed and watched by competent nurses day and night during the first week.

W. B. Laffer, in the discussion of this paper, mentioned a case of cocain habit, treated with hyoscin, in which such inability to judge distance resulted that the patient nearly put out his eyes by coming in contact with surrounding objects. He had never seen any other form of delirium associated with such impairment of vision and he believed it must have been due solely to the hyoscin.

B. E. Sager said that very few articles could be found in the literature or in textbooks giving explicit directions for the treatment of such cases. Under nearly all forms of treatment for drug addictions the patients tended to relapse; the figures in regard to this treatment, however, showed very good results. Toxic effects were sometimes seen from hyoscin, such as very marked relaxation of the vascular and nervous systems. Some of the good results of treatment might be due to this relaxation. He would like to ask what eliminative measures were used.

F. C. Herrick gave some further details of one of the cases reported. The patient, a young man, suffered from dysentery during the Spanish-American War. Subsequently he presented symptoms of gall-stones and developed the morphin habit as a result. During the eight years this lasted he had had no symptoms suggestive of gall-stones. When the morphin habit was cured he had a typical attack of cholelithiasis and was successfully operated upon. The combination of morphin and hyoscin seemed to give better results as a sedative than morphin alone.

H. V. Riewel, in conclusion, said that at the beginning of the treatment he usually gave calomel and salts to assist elimination, but later there was usually some purging, due either to the hyoscin or more probably to the withdrawal of the morphin.

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Book Reviews

Constipation and Intestinal Obstruction. By Samuel G. Gant, M. D., LL. D., Professor of Diseases of the Rectum and Anus in the New York Post-Graduate Medical School and Hospital. Octavo of 559 pages, with 250 original illustrations. Philadelphia and London: W. B. Saunders Company, 1909. Cloth $6.00 net; half morocco, $7.50 net.

As the author points out in the preface, the object of this volume is to present a concise and practical treatise on constipation and obstipation. In the treatment, special attention has been paid to non-medical and surgical measures and to giving the indications for the use of drugs in those comparatively rare instances in which they are required to effect a cure. The anatomy of the parts has been carefully considered and the etiology has been taken up in a satisfactory detailed manner. Among the more important non-medical methods of treatment which he discusses may be mentioned, hydrotherapy, electricity and other physical therapeutic procedures, such as mechanical vibration and massage. The last 200 pages deal with surgical measures which may be called for in the management of these conditions. The illustrations throughout are excellent and the whole make-up of the book is well up to the high standard which is maintained by the publishers. To the reviewer, the work appears an eminently satisfactory one, especially in that it will tend to direct the attention to those therapeutic measures which are often neglected by practitioners of medicine and which furnish the stock in trade of some of the irregular cults which flourish at the expense of the medical profession.

The Practical Medicine Series, comprising Ten Volumes on the Year's Progress in Medicine and Surgery, under the General Editorial Charge of Gustavus P. Head, M. D., Professor of Laryngology and Rhinology, Chicago Postgraduate Medical School. Volume 1. General Medicine, by Frank Billings, M. S., M. D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago, and J. H. Salisbury, A. M., M. D., Professor of Medicine, Chicago Clinical School. Series 1909. The Year Book Publishers, 40 Dearborn St., Chicago, Ill.

This little book gives a very good review of the more important papers published during the past year on subjects relating to internal medicine. These are classified according to diseases of the various organs, 171 pages being devoted to Diseases of the Respiratory Organs, 138 pages to Diseases of the Circulatory Organs and of the Blood, 16 pages to Infectious Diseases, 25 pages to Diseases of the Ductless Glands and of Metabolism, and 40 pages to Diseases of the Kidneys. Such a book will be especially valuable to the busy doctor who has little time for reading. To the man who reads a great deal, and covers the literature of internal medicine thoroughly, it will serve to recall to his mind many of the important articles that had previously come to his attention.

Writing the Short-Story. A practical handbook on the rise, structure, writing and sale of the modern short-story, by J. Berg Esenwein, A. M., Lit. D., Editor of Lippincott's Monthly Magazine. Hinds, Noble & Eldredge, Publishers, 31-35 West Fifteenth St., New York City. Cloth. Price $1.00 postpaid.

The author has made a most critical study of the short-story which, as he says, is now the most popular literary form. After a historical introduction, the nature of the short-story and its structure are most carefully detailed. This part, which constitutes the bulk of the work, is abundantly illustrated with quotations from short-stories by the best authors. Part three deals with the preparation for authorship, including the methods of acquiring a vocabulary and the laboratory method of study of short-stories. Part four deals with the marketing of manuscripts, and

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several useful appendices conclude the volume. The author is eminently qualified to give advice upon this subject since his experience in passing upon the quality of manuscripts submitted to his publication has been very extensive. To any of our readers who contemplate an excursion into this literary field his treatise can be heartily recommended as a eminently satisfactory guide.

A Text-Book of Materia Medica, Pharmacology and Therapeutics. By George F. Butler, M.D., Professor and Head of the Department of Therapeutics and Professor of Preventive and Clinical Medicine, Chicago College of Medicine and Surgery, Medical Department Valparaiso University. Sixth edition, revised and enlarged. Octavo of 708 pages. Philadelphia and London. W. B. Saunders Company, 1908. Cloth, $4.00 net. Half Morocco, $5.50 net.

The preceding editions of Butler's book have been so favorably received and the work is so well known, as one of the best upon these subjects, that an extended review seems scarcely required. The present edition comprises over 700 pages, of which about the first 150 are devoted to the consideration of pharmacology, general therapeutics and pharmaceutic preparations. The remainder includes quite a full presentation of the action and uses of our various remedies and the method of classification renders it readily available for practical work. The chapter upon animal extracts, including opsonic and vaccine therapy, is quite complete and that devoted to the digitalis group is an excellent summary of the drugs of this class. The author places more stress upon the clinical value of cactus than some other therapeutists. While primarily intended for a textbook, it affords a most satisfactory reference work for the physician and will doubtless continue to be, as hertofore, one of the most popular works of its class.

The Practical Medicine Series, comprising Ten Volumes on the Year's Progress in Medicine and Surgery, under the General Editorial Charge of Gustavus P. Head, M. D., Professor of Laryngology and Rhinology, Chicago Postgraduate Medical School. Volume 2. General Surgery, by John B. Murphy, A. M., M. D., LL. D., Professor of Surgery in the Northwestern University, Attending Surgeon and Chief of Staff on Mercy Hospital, Wesley Hospital, St. Joseph's Hospital and Columbus Hospital, Consulting Surgeon to Cook County Hospital and Alexian Brothers Hospital, Chicago, Ill. Series 1909. The Year Book Publishers, 40 Dearborn St., Chicago, Ill.

This volume contains an excellent resume of the general progress in surgery for the past year. All the notable discoveries and improvements in technic are discussed, in many cases with long quotations from the original articles and often illustrated by reproductions of the original cuts. The editorial comment is always helpful and in most cases reference to the original article is given, making a very useful bibliography. This book will be found of extreme value, especially for the general practitioner who desires a thorough but brief resume in the year's surgical progress.

A Correction

Since the publication of my recent paper on "Medical Cleveland in the Nineteenth Century" I have learned from Dr F. C. Waite, Secretary of the Faculty of the Medical Department of the Western Reserve University, that although the first medical class of this institution graduated in 1844, as stated in the paper, the college building, on the corner of St. Clair and Erie streets, was not completed and used for purposes of instruction until the fall of 1846 or spring of 1847. The classes of 1844, 1845 and 1846 must, therefore, have been graduated from the old Farmers' Block on Ontario street. This confirms the entire accuracy of the reminiscences of Dr. J. C. Reeve, of Dayton, who relates that he witnessed the earliest administration of ether

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for surgical anesthesia in Northern Ohio in the fall of 1846 or spring of 1847. The operation was performed by Dr Ackley in a room of the Farmers' Block, and the effect of the anesthetic was not entirely satisfactory, though the patient averred that he suffered no pain during the operation.

This correction is, therefore, published in the interests of historical accuracy.

H. E. HANDERSON.

May 17, 1909.

Medical News

St. Alexis Hospital Alumni Association met at the Hollenden Thursday evening, May 6, 1909. The following program was presented: Practical Application of Vaccine Therapy, Chas. McDonald; Diagnosis and Treatment of Osteomyelitis, J. V. Gallagher.

The Stark County Medical Society met at the City Hall, Canton, Ohio, Tuesday, May 18, 1909. The program was as follows: Psychic Medicine and Psychic Quackery, T. Clarke Miller, Massillon; The Emmanuel Movement, S. B. Dudley, Canton; Modern and Rational Medicine, Edward P. Morrow, Canton.

The Charity Hospital Medical Society met Wednesday evening, May 12, 1909. The program was as follows: 1. Report of Case of Gout; Pneumonia in a Case of Morphinism, B. S. McClintock; 2. A Case of Traumatic Corneal Ulcer, A. N. Dawson; 3. A case of Pelvic Abscess of Appendiceal Origin, A. G. Schlink; 4. Practical Points in Performing Version, L. A. Wheelock.

The Alaska-Yukon-Pacific Exposition will open at Seattle June 1, 1909, closing October 16. The medical department will have a modern, well equipped emergency hospital and will set aside a room for visiting physicians, where they may receive their mail, write letters, etc. Any physician visiting the exposition may have his mail sent in care of the Emergency Hospital at the A. Y. P.

The Medical Era of St. Louis, Mo., during July and August will issue its annual series of issues devoted to gastro-intestinal diseases. The July number will take up the usual bowel disorders of hot weather and the August issue will be devoted entirely to typhoid fever. These issues always attract considerable attention. The editor will forward copies to physicians applying for some.

The Lakeside Hospital Medical Society held the thirty-eighth monthly meeting, Wednesday, May 26. The following program was presented: 1. Presentation of Cases of Hereditary Syphilis, R. Dexter. 2. The Development of the Nose and Nasopharynx in the Embryo and Infant, J. M. Ingersoll. 3. Painless Dental Disease as a Cause of Neurasthenia and Insanity (illustrated with lantern slides), H. Upson. 4. The Air of the Operating Room as a possible Factor in the Infection of Wounds, H. Robb. 5. Presentation of a Case of Acute Iodism with Hyperpyrexia and Hematuria, J. McLachlan. The following officers were elected for the coming year: President, H. Robb; vice-president, C. E. Briggs; secretary, C. Wycoff.

Deaths

A. M. Campbell, Tiffin, Ohio, died April 22, aged 62.
Wm. V. Shaffer, Middletown, Ohio, died April 21, aged 55.
C. F. McBrde, Youngstown, Ohio, died April 13, aged 58.
Wm. H. Shaffer, formerly of Columbus, Ohio, died April 4, aged 65.
Thos S. Potter, Cincinnato, Ohio, died April 20, aged 75.
Enos Greenameyer, Columbiana, Ohio, died May 1, aged 77.
N. B. Prentice, of this city, died May 1, aged 80.
Landon S. Murray, Medina, Ohio, died April 29, aged 69.
R. P. Corbett, St. Louisville, Ohio, died May 8, aged 82.

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See page 20.

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The Cleveland
Medical Journal

VOL VIII JULY, 1909 No 7

Psychotherapy and the Emmanuel Movement.

By WHARTON SINKLER, M. D., Philadelphia.

There are some good things about the Emmanuel Movement, and it has features which are most undesirable; in my opinion the latter largely preponderate. We must recognize, however, that there has been some good in it. First, we will admit that there are a certain number of patients who have been helped by the plan of treatment adopted by Dr Worcester and his associates and who have not been helped by other methods, but the same thing may be said of Christian Science, osteopathy, Dowieism and a score of other forms of therapy which are unscientific and irregular in their methods. The Emmanuel Movement might be made very useful to physicians in the care and treatment of a certain class of patients. Many persons with psychasthenia or mild melancholia are greatly benefited by work and occupation, but few neurologists have the time necessary to go into the troublesome details of finding occupation for such individuals and of seeing that they keep at it. Dr Worcester has a good equipment for the management of such cases and a systematized method of keeping them employed. He has places for wood carving, metal work and other occupations of this kind, and those under his care are sent to visit the sick and to look after dispensary patients—all of which is most helpful. The fact is, that while neurologists fully appreciate the great importance of occupation and work for nervous and mental cases, they have not made a systematic effort to secure such employment for them. However, there are many physicians who do this, and for a number of years in almost every institution for the insane a great effort has been made to provide suitable work.

Read before the Academy of Medicine of Cleveland, May 21, 1909.

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Social workers are also of great assistance in the management of these cases, and Dr Worcester seems to be provided with a number of them. It is a mistake to suppose that the Emmanuelites have a priority in this respect. There are dispensaries which have been using the social worker for some time. I think that neurologists could well employ psychological assistants to help in carrying out mental and moral educational programs in subjects of psychasthenia, neurasthenia and melancholia. Few physicians avail themselves of such assistants, but there is no reason why they should not.

Frequent and prolonged talks are important in the treatment of these cases; the patients are thus brought, by suggestion, to look at themselves and their ailments from a different point of view from that to which they have been accustomed. This method is apparently the stock in trade of the Emmanuelites, and they seem to have time and inclination for lengthy interviews with their clients. The average neurologist has not time for this—of course, he does, to a large extent, endeavor to imbue his patients with the viewpoint they should have, and by his conversation with them suggest what he wishes them to believe, but, as I have said before, he seldom has time enough for sufficiently long conferences to make a decided impression upon them. It would be a great help to the neurologist and save him much time if he could send neurotic subjects to Dr Worcester or one of his followers for religious and moral teaching and suggestive training. The trouble is, the Emmanuelites do not wish to do only this. They want all the credit and glory that may come from such cures, for themselves, and claim that they are able to deal with these patients far better than a physician. They are very ready to go to a physician or neurologist for a diagnosis, but they have no further use for him if he decides that there is no organic disease. One must remember, however, that a neurologist cannot always make a diagnosis in a single visit. There are many organic diseases which resemble hysteria so closely that it is often some time before the true nature of the trouble is understood: take for example certain brain tumors with which, in the early stages, there may be no symptoms except those of hysteria. It is advisable, therefore, that the neurologist should have the opportunity of seeing these patients frequently. Is there any reason why they will be better managed by a clergyman than by a neurologist or a physician? Is the psychological

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treatment offered by Dr Worcester or his followers any better than that which the medical profession has been using for years? The use of such psychological methods is not new. Doctors have been employing them consciously or unconsciously from time immemorial. When a patient is given a prescription he is told emphatically, with all the confidence the doctor can command, that if he takes this medicine and follows directions, he will get well. What is this but suggestion?

Followers of the Emmanuel Movement have stated that there is a great increase in nervous diseases. Nervousness, they say, is a disease of civilization, and at the present time there is more of it than there ever has been before. Bishop Fallows makes this remarkable and absurd statement: "The functional disorders of the nervous system are quite modern. They appeared sometime in the last century and were not known before in the history of the human race. They are so common now that the physicians designated as neurologists cannot take care of one-tenth of one percent of these cases." The good bishop has apparently never heard of the epidemics of nervous diseases in the Middle Ages,—dancing manias, tarantulism, and similar outbreaks to which it is not necessary for me to refer before this audience.

The key-note of the treatment of psychotherapy by the followers of the Emmanuel Movement is hypnotism and suggestion, or suggestion without hypnotism. For many years hypnotism, as a method of treatment, has been before the profession. It has been tried by many but has been discarded for two reasons: First, because it was uncertain and unreliable and its effects were not lasting; and, second, because it was a dangerous procedure. Often, susceptible hysterical girls have exhibited under hypnotism, erotic tendencies toward the operator and caused much trouble in this way. In other instances, the subjects of frequent hypnotism have become much unbalanced mentally and the victims of self-hypnotism. I well remember a young man whom I saw several years ago, who had been hypnotized several times as an experiment by a teacher in one of our colleges. He became so much under the control of the proceeding, that he acquired the habit of hypnotizing himself. He would go off into long hypnotic trances with hysterical phenomena, and it was many months before he regained a normal condition. By suggestion an influence may be acquired over weak girls, which, to say the least, may go beyond therapeutic measures.

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Another trouble is that diseases may be suggested to susceptible people. Many persons, as a result of curiosity, or because they have nothing better to do, follow the fashionable fad and go to a church clinic. There, they acquire by suggestion a variety of nervous ailments. The same suggestion that may effect a cure, may also suggest diseases. Mills says: "Epidemics of hysteria follow in the wake of the cure of sporadic diseases of the same disorder, when these cures are brought about with all of the sensational accompaniments of a healing shrine."

Another thing to be borne in mind is that all who follow the Emmanuel Movement are not Worcesters. He is an honest and intelligent man with a well trained mind. It is his individuality which has brought about his success. An ordinary man would be an utter failure in this plan of treatment, as I have no doubt many have been who have tried to follow the Emmanuel Movement. There is also the danger of its being taken up by irresponsible and unreliable people for the sake of gain or notoriety and we must not believe that the church clinics are all carried on without reward or remuneration.

Even Dr Worcester himself has not escaped a breakdown in health, although the newspapers say that owing to his faith in his doctrines, he has made a most remarkable recovery. It would look, too, from the newspaper report as if he had become somewhat of an osteopath, for in the report of his symptoms the inevitable small bone in the spine became displaced and had to be removed. The report from Boston, May 2, 1909, says: " 'Last November Dr Worcester injured his spine in attempting to lift a heavy weight,' said his physician today. 'The fact is he tried to lift a heavy trunk and dislocated one of the smaller bones at the base of the spine. The injury was excruciatingly painful and to most men would have meant an important surgical operation. There was pressure on the spinal cord and intense suffering, but Dr Worcester hung on. It was a magnificent exhibition of grit. In response to our inquiries, when we saw that something was wrong with him—we thought it was overwork—he told us the circumstances. We advised him to retire and be treated. He said that he would simply go through Lent, but agreed that if he was able to do that he would take a rest after Easter. He made a grand, game fight. After Easter we made

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a small operation and Dr Worcester, I am very glad to say, is now practically cured.' "

In conclusion I would quote what Dr Lightner Witmer says: "Whatever Dr Worcester may be in his own church clinic, the principles of psychotherapy to which he and his associates adhere, are based upon neither sound medicine, sound psychology, nor, to our lay mind, upon sound religion."

The Hemorrhage in Ruptured Ectopic Pregnancy.

By HUNTER ROBB, M. D.
Prof. of Gynecology, Western Reserve University and Visiting Gynecologist to the Lakeside Hospital, Cleveland, O.

The subject of the treatment of ectopic pregnancy has produced a considerable amount of discussion during the past two years, the principal question to be decided being the appropriate time for operation after rupture of the sac. No doubt at the present time those who are in favor of carrying out the immediate operation, no matter what may be the condition of the patient, are very largely in the majority, but there is a goodly minority of operators who do not hold such radical views, but prefer to wait whenever possible until the patient is as free from shock as possible. That this latter view is gradually gaining ground is shown by the maturer criticism of some of the gentlemen who at first so strenuously opposed any idea of delay in carrying out operative procedures. Until this discussion was started nearly every physician believed that an immediate abdominal operation should be carried out in all cases of ruptured ectopic gestation, but it is now considered by many who advise the carrying out of immediate radical measures that except in about five percent of the cases such a procedure is not called for by the actual condition of the patient, but on account of the possibility of the development of unfavorable symptoms, so that as a preventive measure an operation is carried out just as soon as the necessary arrangements can be made.

Time will not permit me this evening to make more than a few remarks upon the clinical phase of the subject, except where they would seem to be justifiable from the findings of our experimental work, nor does it seem to me advisable at this junc-

Read before the Section of Experimental Medicine of the Academy of Medicine of Cleveland, May 14, 1909.

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ture to open up the general consideration of the treatment of ectopic gestation. I will therefore confine my remarks almost entirely to our experimental findings.

I am well aware that thoroughly reliable deductions cannot be drawn from experimental work on animals in this connection. Standing by themselves the results of such experiments are of little or no value and may even lead to absolutely wrong conclusions; but where they seem to supplement and bear out our clinical experience, they certainly should be accorded some consideration.

Before taking up these experiments I had arrived at some rather positive conclusions from my clinical observations on the subject of the hemorrhage that takes place after a rupture in ectopic pregnancies, and certainly our work on dogs has seemed to confirm our previous clinical experience. By some who have discussed the report of our findings certain exceptions have been made. We have, however, recorded our results of which we have the full protocols and which can be substantiated by those who took part in the experiments.

One criticism that is frequently made of drawing any conclusions from cutting the uterine and ovarian vessels of a dog is that if you cut the carotid artery of a dog it will not bleed to death and, therefore, experiments such as ours can have no bearing on what would occur in the human subject. I am not prepared to deny the first part of this statement, but I know that if you cut the renal artery of a dog it will bleed to death, and that it will generally die from hemorrhage if the carotid is severed. Nor should we forget that with regard to the carotid of a dog, one must take into consideration that the exposure of the bleeding vessel to air would influence the clotting of the blood to a considerable extent, whereas in the cutting of the pelvic vessels this factor is practically eliminated and the condition is more like that which is found following ruptured tubal pregnancy. On the other hand, one critic has said that he has seen two dogs die after division of the ovarian vessels, but without denying that a fatal result might occasionally occur, I will only say that we have tried to kill a dog in this way many times without producing symptoms even suggestive of a fatal result. I feel confident that the position we have taken upon this subject will be regarded in the course of the next five to ten years as not far from right.

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In the experiments that we have carried out attempts were made to cause lesions in dogs which would correspond in severity to those present in cases of ruptured ectopic pregnancies in women.*

These experiments, so far as we have gone, (31 experiments), seem to show that, in dogs at least, the hemorrhage from large internal vessels ceases before it is sufficient to prove fatal. No dog succumbed to the hemorrhage following excision of the ovary, division of the broad ligament with section of the left uterine vessels, section of the uterine vessels on both sides and other lesions. In none of these cases did the dog succumb to the hemorrhage although we probably subjected our animals to as great a risk of bleeding to death as is incurred by the average woman suffering from a ruptured tubal pregnancy.

Before taking up in some detail the findings in our experimental work I would like to briefly recall to your memory the anatomy of the parts. In the bitch, the uterus consists of the body or corpus and its two long horns or oviducts; in the latter, fetal development takes place. The oviducts are connected anteriorly with the very short, slender Fallopian tubes; the outer ends of the latter lie very near the ovaries, which are situated posterior and dorsal to the kidneys. Each uterine artery is a branch of the pudic, the latter being one of the two main divisions of the internal iliac; they are vessels of considerable size, even as compared with the corresponding arteries in women. The ovarian vessels, on the other hand, are quite small.

With these anatomical differences in mind, a résumé of the cases is herewith presented. The experiments carried out may be divided into six series:

1. Division of the uterine and ovarian vessels.
2. Division of the uterine vessels producing shock. Secondary operation on the dog while in a condition of shock.
3. Division of the uterine vessels and observations on the blood-pressure and hemoglobin.
4. Division of the uterine vessels and observations on the pulse, respiration and hemoglobin with special reference to the time of the clotting of the blood.
5. Division of the vessels, observations on the pulse, respiration and hemoglobin before and after bandaging and before and after applying weights to the lower abdomen.

*The animals were completely anesthetized with ether during the whole of the operative procedures.

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6. Division of the uterine vessels with the dog in the upright position; observations on the pulse, respiration and hemoglobin.*

In series No. 1,—in which the uterine and ovarian vessels were cut—not one of the 16 dogs died as the result of the hemorrhage. Probably a woman rarely if ever dies of the hemorrhage *per se*. In support of this contention I would like to call your attention to the following evidence.

Physiologists have estimated the total quantity of blood in the human body at about 7.7% of the body weight. Thus, a woman weighing 130 pounds would have a blood content of about 10 pounds.

Now "just what percentage of loss"—to quote from Howell—"can be borne by the human being has not been determined, but it is probable that a healthy individual may recover without serious difficulty from the loss of a quantity of blood amounting to as much as three percent of the body weight." This, in a woman of 130 pounds, would be a loss of four pounds, or approximately 1,650 c. c. We question whether so large an amount or, at any rate much more blood is found in the average patient of the above weight as a result of the hemorrhage resulting from a ruptured ectopic gestation.

I would like to briefly call your attention to the experiments carried out in Dogs 7 and 13, as they are of rather unusual interest.

In Dog No. 7, after cessation of the bleeding, we injected subcutaneously 400 c. c. of normal salt solution. This procedure seemed to exercise a general beneficial result, but brought about no recurrence of the hemorrhage. This observation would go towards refuting the view of Fritsch, who says, "To give subcutaneous saline infusions before the operation is wrong. I would advise them directly after the operation."

Dog No. 13, about one-third along with her pregnancy, was operated upon four times within a period of nine days. At the first operation the right uterine vessels were incised. At the second operation (two days after the first) the fetal sacs on the left side were opened by longitudinal incision. At the third operation (on the day after the second operation) the distal portions of the right uterine vessels were severed again, and the fetal sacs on the right side were torn open, the left sacs were again cut open in different places and the left uterine vessels were severed. At the fourth operation (five days after the third operation) the uterus and fetal sacs were removed. (No vessels were tied or clamped at any of the operations.) Twenty-four hours after the last operation the dog was able to be on her feet and took nourishment readily.

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*In carrying out these experiments we followed the "team work" of the operating room; i. e. one man for the administration of the anesthetic, one for the blood examinations, and two for the performing of the operation. In this connection I wish to acknowledge the valuable assistance given me in the carrying out of this research by Drs M. B. Bonta, Frank C. Ainley and Fred W. Hall.

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Series No. 2. Résumé: Division of the uterine vesels producing shock. Secondary operation on the dog while in a condition of shock.

In this dog the right uterine vessels were severed and the abdomen was closed while the vessels were bleeding. After an interval of 35 minutes the dog's pulse was 204, but it had fallen to 140 before the abdomen was opened again. On opening the abdomen the second time we manipulated the abdominal contents in very much the same manner as would be carried out in doing an operation for a ruptured ectopic pregnancy. The abdomen was then closed. In 35 minutes after this the dog died, either from the effects of the operation, or of the anesthetic, or from a combination of these factors. This experiment, while only a single observation, is at least suggestive that the addition of shock to shock— which is precisely what we bring about when we submit a woman to an immediate operation for ruptured tubal pregnancy—is very likely to prove fatal.

Series No. 3. Résumé: Division of the uterine vessels and observations on the blood-pressure.

In Dog No. 1 of this series the blood-pressure had dropped from 130 mm. of mercury to 100 mm. of mercury within five minutes after the uterine vessels had been cut, and in 30 minutes more the blood-pressure was 90 mm. of mercury. During this period of time the hemoglobin fell in all 22% (from 120 to 98).

In another experiment (this dog had been operated upon five days previously), both ovarian and uterine vessels having been cut, the hemoglobin fell from 127 to 115 in 43 minutes. Five days after the operation the hemoglobin was 110. Eleven days afterwards a second operation was carried out similar to that upon Dog No. 1 of this series. The blood-pressure, which was 120 mm. of mercury, one hour after section of the right uterine vessels had fallen to 110. The hemoglobin at the beginning of the experiment was 130 and had fallen to 115 an hour after the cutting of the vessel.

As might be supposed the blood-pressure falls slightly and the hemoglobin drops immediately after division of the vessels. As soon, however, as the bleeding ceases the hemoglobin stops going down and remains stationary for a time, and the blood-pressure begins to rise again.

Series No. 4. Résumé: Division of the uterine vessels and observations on the pulse, respirations and hemoglobin with special reference to the time of the clotting of the blood. In this series we endeavored to trace some connection between the pulse, respirations and hemoglobin values and the formation of the blood clot, or in other words the cessation of the bleeding.

In the first dog of this series, in eight minutes after the left uterine vessels had been cut the pulse had risen from 200 to 240, and the respirations were 52. In 23 minutes after the severance of the vessels, the hemoglobin had fallen 20 points, but taken 15 to 30 minutes later the hemoglobin showed the same reading. After the hemoglobin ceased going down the pulse and respirations began to improve, the pulse going to 154 and the respirations to 24. On reopening the abdomen we found a number of clots lying between the intestines and the bladder and around the cut ends of the vessels. One clot which weighed one gram was

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removed and active bleeding started up again. The abdomen was again closed. Ten days after the operation the dog developed a septic peritonitis from the infected abdominal incision and died.

We have carried out this experiment frequently enough in dogs to make us feel reasonably certain that from the hemoglobin readings alone we can tell the time at which the clot has formed in the vessels. In every instance in which the hemoglobin ceases to go down and the reading remains stationary (and this in our experience always occurs) and the abdomen is reopened a well formed clot will be found occluding the vessels. I believe that the hemoglobin readings will be found very useful in cases of intra-abdominal hemorrhage from a ruptured ectopic pregnancy, and that when we see that the hemoglobin remains stationary we can feel confident that we are doing the best for the patient in not operating at once.

The experiments in this group of dogs may be divided into three distinct portions: (1) In the first the pulse and respirations become very rapid after the division of the uterine vessels, the pulse becoming in some instances so fast that it is practically impossible to count it. During this time the hemoglobin will fall from 10 to 20 points. This portion of the experiment occupies about 20 minutes. (2) During the next 15 to 20 minutes the dog looks as if it would die, but the hemoglobin remains practically stationary. If the abdominal cavity is now reopened a well defined blood clot will be found about the incised vessels and the pedicle, and the bleeding will have ceased. (3) During the third 15 to 20 minutes, if the dog is left alone, the pulse and respirations start to improve again, and the dog begins to show evidences of reacting. As a rule from then on the recovery is without incident.

In this series, to sum up, immediately after the cutting of the vessels the pulse and respirations rose and the hemoglobin fell. After 15 to 20 minutes the pulse and respirations had improved and the hemoglobin remained stationary. On opening the abdomen it was found that the bleeding had ceased and clotting had taken place.*

*It has been stated that the hemoglobin percentage does not fall at once following a hemorrhage. Our findings certainly demonstrated that the hemoglobin percentage falls immediately after section of the ovarian and uterine vessels. Hundreds of observations made with the Sahli hemometer by Dr Ainley and confirmed by Dr Hall and myself prove this statement beyond any peradventure. In making these examinations the personal equation must always be taken into consideration, but even considering this factor the difference is never more than a few points one way or the other in the hands of the trained observer.

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Series No. 5. Résumé: Division of the vessels, observations on the pulse, respiration and hemoglobin before and after bandaging and after applying weights to the lower abdomen.

I wish to call attention to one or two striking experiments in this series.

Dog No. 19, weight eight pounds. The pulse immediately after both uterine arteries and veins had been cut and before a tight abdominal bandage had been applied was 200, and the respirations were 48.

Forty-five minutes later the pulse was 96 and the respirations were 24. Four hours and 10 minutes after the cutting of the uterine vessels the pulse was 108 and the respirations were 12.

In Dog No. 21, the hemoglobin, which before section of the vessels was 125, fell to 110 in 10 minutes. The bandage was then applied to the abdomen and the pulse from 162 and the respirations from 56 came down to 126 and 40 respectively in 20 minutes. Fifty minutes later the pulse varied between 156 and 136, and the respirations between 14 and 20, the hemoglobin still remaining at 110. In two similar experiments a rubber tourniquet was applied after section of the vessels, and the results were somewhat similar.

In Dogs Nos. 17, 18, 20, still more striking results in the pulse, respiration and hemoglobin were obtained by applying weights to the lower abdomen and thus bringing the anterior in more direct apposition with the posterior abdominal wall.

Thus in Dog No. 17, which weighed 13 pounds, 12 minutes after section of the uterine vessels the pulse was 154, the respirations were 36 and the hemoglobin had fallen 10 points. A 12-pound weight was applied to the abdomen and in eight minutes the pulse had fallen to 118, and the respirations to 24, but the hemoglobin remained stationary. After 10 minutes the pulse was 116 and the respirations were 24. We now opened the abdomen and exposed the vessels; they were surrounded by a firm clot. The clot was removed and the pedicles were dropped back into the abdomen. The pulse and respirations rose again, and the hemoglobin fell to 107—eight points lower than it had been before the fresh hemorrhage was started up. The weight was applied again to the abdomen and in two minutes the pulse had fallen from 132 to 114. Twelve minutes later the weight was removed again, and immediately the pulse rose to 148.

One other striking experiment in a dog that weighed 12 pounds in this group showed that in five minutes after putting a 7½ pound weight on the abdomen, the pulse had fallen from 120 to 100, and the hemoglobin from 98 to 88.

This last and other experiments with pressure, particularly when it is applied so that the anterior and posterior abdominal walls are brought more closely together, would suggest the application of pressure over the lower part of the abdomen in cases of a hemorrhage from a ruptured ectopic pregnancy. This might possibly be carried out by the use of shot-bags of known weight, as much weight being employed as the patient could comfortably stand. As our experiments showed, by using the weight in the way just described the results were more striking than when the abdomen was simply bandaged.

Series No. 6. Résumé: Division of uterine vessels with

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dog in the perpendicular position; observations upon pulse, respiration and hemoglobin.

In the first dog the pulse had fallen from 200 to 180, 10 minutes after the dog had been placed in the upright position, but the hemoglobin had remained stationary. After 20 minutes the pulse had fallen to 140 and the hemoglobin had also dropped four points. After 20 minutes more the pulse had risen to 160, but the hemoglobin remained practically stationary. The abdominal cavity was reopened and a well defined clot was seen covering the incised tissues; the vessels had ceased to bleed.

In the second dog the vessels were cut with the dog in the perpendicular position, and the bleeding vessels were observed through a strong magnifying glass in order to compare the time of clotting with the hemoglobin readings. The hemoglobin had fallen three points seven minutes after incision of the vessels. After three minutes more the incised tissues had begun to take on a glazed appearance, and the hemoglobin remained stationary (10 minutes after the uterine vessels had been cut). Three minutes later the dog began to struggle and to force the abdominal contents through the incision, and the hemoglobin taken 40 minutes later showed a fall of five points more. One hour and 20 minutes later the pulse was 132, the respirations were 16 (the hemoglobin was not taken). In this experiment we would have to consider the influence that the air would have in helping to cause the clotting of the blood, and as a consequence the relatively slight drop in the hemoglobin index.

CONCLUSIONS.

From our clinical and experimental experience we have arrived at the following conclusions:

I. In a woman suffering from a ruptured ectopic pregnancy death is caused mainly by shock which may be increased very markedly by a major operation with all its exhausting preliminary procedures. The hemorrhage *per se* is rarely, if ever, the sole cause of death.

II. An immediate operation may add shock to shock and so prevent recovery.

III. Experimental work goes to show that the hemorrhage ceases in from 15 to 20 minutes. The fact that the hemoglobin remains stationary shows that clotting has taken place. These facts, we believe, may be utilized in our clinical work.

IV. In dogs the subcutaneous injection of salt solution improves the pulse and respiration and does not start the hemorrhage up again.

V. The use of bandages or proper weights by which the anterior and posterior abdominal walls are approximated is likely to improve the condition of these patients.

VI. When the diagnosis of ectopic pregnancy is certain, operative measures are indicated in the near future; but in most cases the danger is not sufficiently imminent to warrant imme-

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diate interference unless the condition of the patient is otherwise satisfactory.

VII. Many women not only survive the effects of a tubal abortion or rupture, but also recover even without an operation.

VIII. Not more than five percent of the victims of ectopic pregnancy die at the time of rupture, whereas after the immediate operation in cases of ectopic gestation in 1,176 cases, in 25 clinics, the mortality was eight percent.

IX. When a patient is seen in a state of collapse, as the result of a ruptured ectopic sac, she should not be operated on until the condition of shock has been tided over.

X. These patients when they die rarely if ever succumb from loss of blood alone, but mainly from shock. Why then should we superadd to the original shock the additional shock of a major operation, with all the exhausting preliminary procedures?

XI. In support of the view that these patients die from shock and not from loss of blood, we have clinical observations of good authorities, and also experiments on animals, the first showing that patients whose abdomens were filled with bloody fluid have survived; and the second proving that dogs when exposed to dangers from hemorrhage (sufficiently severe to more than equalize the factors of resistance) do not succumb.

XII. In most of these cases, when we operate to ligate a bleeding vessel, no bleeding vessel is found. In some cases the bleeding is undoubtedly started again by the manipulations of the operator.

XIII. What frequently appears to be a continuing hemorrhage may be produced by a welling up of the blood that was poured out when the sac finally escaped through the fimbriated end of the tube.

XIV. Some of the reasons for believing that the hemorrhage is not so great as has been generally supposed at the time of the rupture are as follows: (a) The great majority of ectopic sacs rupture between the first and third week of gestation. (b) The point at which the impregnation takes place is in a small area formed by a diverticulum in the tube, and the chorionic villi have only a feeble attachment. (c) From 75 to 78% of the ruptures occur through the fimbriated end of the tube, and are tubal abortions not more dangerous, so far as hemorrhage is concerned, than those occurring through the cervix. (d) The

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next most frequent place of rupture is the isthmic portion of the tube, which is also free from any large blood-vessels. (e) The point of rupture in the gestation sac practically never involves the ovarian or uterine vessels. (f) As a result of the inflammation which precedes the ectopic gestation, there is a relative increase of the connective tissue in the tube, and owing to the contraction of the connective tissue the vascularity of the tube is limited. (g) The placenta is generally attached to the posterior wall of the tube and as the rupture is generally through the anterior or lateral wall of the tube, the placenta is not lacerated, but retains its firm attachment to the wall of the tube and is subjected to pressure.

XV. Physiologists teach that a woman weighing 130 pounds, must probably lose four pounds of blood before succumbing to the effects of the hemorrhage *per se*. So large an amount of blood is rarely found in the abdominal cavity—the sanguineous fluid is a mixture of blood and a serous exudate.

XVI. The sudden removal of a large quantity of recently accumulated fluid in the abdomen, before the other vessels have had time to adapt themselves to the altered mechanical conditions, is dangerous and may be followed by fatal syncope.

XVII. Patients in whom the bleeding would be sufficient to cause death are rarely seen in time to be saved by an operation for ligating the bleeding vessel.

XVIII. Our best operators give a percentage of 40 or 50% as their death rate after immediate operations during shock.

XIX. The results obtained by not a few good operators who have waited and carried out the deferred operation are certainly worthy of consideration. Their favorable statistics certainly can not be attributed simply to "blind luck."

XX. So long as there is a reasonable evidence that immediate operation may be the wrong procedure, it is our duty to hold our hands and leave something to Nature. The medical profession to a large extent has given up the use of dangerous drugs, except when the indications for their use are clear. Should not operators have the same consideration for the lives of their patients?

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Clinical Observations Upon the Administration of Nitrous Oxid and Oxygen for General Surgical Anesthesia.

By C. B. PARKER, M. D., Cleveland

This paper is based upon observations made in 218 operations performed under nitrous oxid gas, with pure oxygen, as the anesthetic and covering a period from July, 1904, to the present time. Nearly all were capital operations and the subjects unfavorable for the administration of any anesthetic. Among the patients were those suffering from organic diseases of the heart, lungs and kidneys; wasting and suppurative conditions; asthma, empyema, diabetes and alcoholism; among them were also the very old and the very young; patients greatly over weight; those who had developed alarming symptoms in previous attempts at anesthesia with ether or chloroform and those who had experienced the distress of a previous etherization. The Teter apparatus was used in all cases and in all but three instances Dr Teter himself administered the gases.

The anesthetic action of nitrous oxid gas is no new discovery. In 1844 Horace Wells, a dentist, rendered himself unconscious by inhaling it. The admixture of gas and oxygen was first practised by Dr E. Andrews of Chicago in 1868. The value of this discovery seems to have been overlooked for 10 years when Dr Paul Bert of Paris also experimented with mixtures of nitrous oxid gas and pure oxygen. He finally concluded that the best results were obtained when the administration was made under increased atmospheric pressure. He constructed a metal cabinet roomy enough to permit a capital operation to be performed in it. His work attracted considerable attention but the apparatus was cumbersome and expensive and the early teachings of Coulton, namely that nitrous oxid gas must be administered entirely free from all admixture of air, held such firm sway and were so generally practised by nearly all dentists, that this idea of the administration of pure oxygen with nitrous oxid gas was not carried out as it should have been.

Some years ago the attention of the profession was attracted to the use of pure oxygen with chloroform in producing anes-

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thesia. A Junker apparatus was used and the chloroform vaporized by forcing the oxygen through it. Something over 187 observations upon this method of using oxygen and chloroform were made and the general claim that there was less disturbance during the anesthetic and rarely any serious vomiting afterwards was substantiated and so reported to the Ohio State Medical Society at its last meeting in this city. The experience gained at this time interested me in the possibilities of nitrous oxid gas and oxygen as a safe and sufficient anesthetic in major surgical operations.

How nitrous oxid gas with an admixture of oxygen produces anesthesia is still a disputed question, but that it has anesthetic qualities of its own, not dependent upon its asphyxial properties, is well established.

Hewitt draws attention to the fact that nitrous oxid is as much a general anesthetic as chloroform. One is a gas, the other must be vaporized and one is decidedly more toxic than the other. Both require a large admixture of oxygen and both are intensified in their anesthetic action by reducing the amount of oxygen supplied. Death ensues when their administration is prolonged with the proportion of oxygen in either case diminished below certain amounts.

In the administration of nitrous oxid gas and pure oxygen, as now practised, there is no stertorous breathing, extreme muscular rigidity, drooling or lividity. The smallest quantity of oxygen, two to three percent, overcomes these symptoms. The time consumed in producing surgical anesthesia will, of course, depend somewhat on the condition of the patient, the character of the operation and other incidental conditions. In a general way it can be said that the more oxygen above two percent given, the longer the time elapsing to complete unconsciousness. Whereas with pure nitrous oxid gas this period is about 56 seconds, with oxygen the minimum is 115 seconds and the average from two to three minutes. No effort is made to reduce the time to less than this period, for it is found that the more oxygen given the more prolonged the anesthesia. The administrator seeks to regulate the depth of the anesthetic by the amount of oxygen, while the flow of nitrous oxid is even and continuous. This is very difficult to accomplish with some kinds of apparatus and the patient is one moment livid and snoring and the next struggling and even conscious. The personal skill of the admin-

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istrator, also, has much to do with maintaining an even, complete narcosis.

In my own observation one hour and 50 minutes was the longest time a patient was anesthetized. This was an operation for a large umbilical hernia in a woman weighing 340 pounds. It has, however, been prolonged for two hours or more. Hewitt speaks of 50 minutes as the longest time he had used this method of anesthesia and this was not an operative case but the anesthetic was given to do a dressing.

There are three well defined stages in the narcosis. In the first stage there is some excitement, the patient breathes deeply and the pulse beat increases and becomes fuller. In the second stage consciousness is lost, there are movements of the extremities, there is rarely any sound except rapid and deep breathing, the pulse in full and above normal, there is some cyanosis and some snoring. In the third stage the breathing becomes more tranquil but is still deep, the pulse is strong and rapid and the patient's appearance is good, like that of a tired person in a deep sleep.

As evidence that complete surgical anesthesia is present we have the complete muscular relaxation, absence of conjunctival reflexes, deep, tranquil breathing and pupils usually normal.

The following may be mentioned as some of the principal objections to this anesthetic:

1. Cyanosis. The surgeon has to accommodate himself to this symptom. The dark blood, which would startle him in any other form of anesthesia, he learns to overlook. In connection with the cyanosis the blood-pressure is raised. Indeed it seems to follow the degree of cyanosis. In one or two operations in which the dura mater was exposed this increased pressure was evidenced by the bulging of the dura and brain into the trephine opening as cyanosis increased and their receding when the increased quantity of oxygen overcame the cyanosis. Bleeding from small vessels also indicates that the blood-pressure is raised. No tendency to intermediate or secondary hemorrhage following an operation has been observed and from what is believed to be true of the effect of the nitrous oxid gas on the blood and its vessels, all action ceases the moment the anesthetic is withdrawn.

2. Muscular rigidity. This is most frequent in young and vigorous subjects and often disappears as the anesthetic is continued. One cannot predict in what case it will appear. While very annoying to the surgeon in a difficult enucleation of a

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tumor from the pelvis, when once the growth is lifted out of the cavity the rigid abdominal walls really serve to keep back the intestines. Here too the skill of the administrator comes in. The preliminary hypodermic of morphin sulphate ¼ grain and atropin sulphate 1/100 at least 30 minutes before the operation, which was not our practise until after the first few years, has diminished the cases of rigidity very much. Indeed I do not recall any case within the last year in which this rigidity was any hindrance to the operator.

3. It takes a specialist to administer the anesthetic successfully.

4. The expense. The materials and apparatus are more expensive than with any other general anesthetic. One essential of the apparatus is a device for warming the nitrous oxid gas, so as to avoid the too rapid cooling of the body, thus diminishing the shock. Dr Glover, in 1877, called attention to the fact that the warming of ether increased greatly its anesthetic power per volume. Dr Gathmey has more recently experimented with warming chloroform, ether and nitrous oxid, and concludes "All anesthetics are increased in value, as regards life, by heating them to the temperature of the blood without decreasing the anesthetic effect." In hospital practise the expense of the materials may be greatly diminished by installing a plant for making the gases and a pump to compress them to such a degree that they will flow in an even current at all temperatures. Such a plant is used in Saint Luke's Hospital, the gas being piped directly to the operating room. With such provisions for manufacturing the gases, the actual cost should be little more than that for ether or chloroform. But should the cost outweigh the safety and comfort of the patient? From personal observations I am convinced that this is the anesthetic I would have used in my own case were one necessary.

Some of the advantages are:

1. The greater safety in all diseases of the heart, kidneys, etc., all exhausting diseases, alcoholism and anemia. According to statistics one patient in 2000 dies from chloroform anesthesia, one in 5,000 from ether and one in 50,000 from nitrous oxid. Experiments show that it is almost impossible to kill an animal with nitrous oxid and oxygen. This combination, we believe, is safer than pure nitrous oxid and consequently the statistics when both were used would be correspondingly favorable. Here in

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our midst it has been administered usually in only the very worst surgical cases, those considered, for one cause or another, dangerous for the administration of ether and yet the records show but one death. This occurred in a very debilitated patient, subjected to a long operation for gall stones. In this case it is very doubtful if the death was due primarily to the anesthetic.

2. It is the most agreeable anesthetic. There is no vomiting, or it is only slight, as the patient recovers consciousness. In no case did prolonged vomiting occur.

3. The period during which the anesthetic is exhibited is shortened from 5 to 15 minutes. After the nitrous oxid is withdrawn, oxygen is continued and the patient returns to consciousness within two or three minutes.

4. It is a boon for those who have once taken ether and dread a repetition of their disagreeable sensations.

The first patient operated on was a physician, a member of the Academy, who feared to take ether owing to the condition of his heart. He had been suffering a long time from blood-poisoning, due to an infected hand. He was much weakened and had some fever. He came to the hospital for the operation and left for his home within the hour, none the worse for the anesthetic.

Another case was that of a woman with a dermoid cyst. She was of a very nervous temperament. An attempt had been made to anesthetize her with ether but her condition became very alarming and the operation was postponed. A few days later nitrous oxid gas and oxygen was administered without any disturbance and the operation successfully completed.

A third patient was a surgeon, who 13 years previously had had a dislocation and took ether for its reduction. He was unfortunate enough to dislocate the same joint again just after he had taken his luncheon. Gas was administered for the reduction. He did not lose his luncheon and became a warm advocate of this form of anesthesia.

In one case, operated upon for multiple fibroids, there was marked shock present during the operation. The patient was an excitable woman, fearful and without courage or hope of recovery. This was the only serious case of profound shock following the administration of this anesthetic.

Another case, a L. S. & M. S. Ry. employee, received a compound fracture of the left leg and a simple fracture of the

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left femur. He had also severe crushing of the calf and of the soft parts of the right leg and right popliteal space. An attempt was made to save this leg as it was feared that the other might not do well. Three weeks later the right leg became infected, many abscesses formed and his condition became desperate. The patient and his family refused to give their consent to an operation until he was delirious and emaciated to a skeleton. The heart was alarmingly weak, the pulse was 148 and the temperature varied from 99.8° to 105° F. Under gas the thigh was amputated at the junction of the upper and middle thirds, without any alarming symptoms developing during the anesthesia and with a speedy recovery.

1521 Euclid Ave.

The Use of the Skiagraph in Litigation.

By R. B. NEWCOMB, M. D., LL. B., Cleveland

Thirteen years ago, in a Colorado court, appears the first known record of the skiagraph, as evidence.

The court then said, in passing upon the admissability of an X-ray photograph: "During the last decade no science has made such mighty strides forward as surgery. It is eminently a scientific profession, alike interesting to the learned and unlearned. It has been of inestimable value to mankind. It must not be said of the law that it is wedded to precedent, and that it will not lend a helping hand. Rather, let the courts throw open the door to all well considered scientific discoveries. Modern science has made it possible to look beneath the tissues of the human body and has aided surgery in telling of the hidden mysteries. We believe it to be our duty, in this case to be the first, if you please, to so consider it, in admitting in evidence a process known and acknowledged as a determinate science."

Today it is an almost universally settled rule of law that X-ray photographs and plates may be admitted upon the trial of any case in which they may be relevant. Such testimony, however, should always be accompanied by the physician or operator who secured the photographs, so that he can testify to the fact that such photographs or plates were made by him, and that they are of the subject at issue.

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For the purpose of proper identification, every X-ray plate should have written upon it in ink, in the handwriting of the operator, first, the name of the patient; second, the date; and third, some mark so that the operator may be able to identify the part or side from which the negative was taken.

It is also sometimes advisable to secure a skiagraph of the corresponding uninjured part, for the purpose of comparison.

Kassabian says: "In medicolegal cases, the X-rays are of inestimable value to the physician or surgeon in sustaining a diagnosis, to the patient who is instituting the suit, and lastly and probably most important to the judge and jury to whom medical terms and expressions are often so wholly unintelligible."

The legal effect of skiagraphic evidence concerns both the doctor and the lawyer. It concerns the doctor in every case in which photographic plates may be called in evidence to support a malpractise claim. In consequence, the new science adds greatly to the responsibility of the surgeon. Heretofore, he could keep his mistakes forever buried beneath an integumentary sheath, now the jury are able to see through the opaque tissues, and view the bony fragments as they really are. This added detriment of increased responsibility ought to have its complement in the benefit of increased compensation, because the greater the risk to the doctor, the larger should be his remuneration.

The average layman, and that includes substantially all the lawyers, upon examination of a skiagraph showing an overlapping of fractured bones, immediately concludes that someone has been the victim of negligent surgery, and the possibilities of a successful malpractise case takes on a rosy hue. Right here a little intelligent judgment on the part of the lawyer, likewise upon the part of the surgeon, ought nearly always to result in the saving of time and money, because everyone who has given the subject reasonable observation knows that an X-ray plate may show in a fractured leg the worst imaginable result, both bones may be overlapped, and only fibrous union exist, yet that does not, in and of itself, prove malpractise. More probably does it indicate that the injury was very severe; that the bones and soft structures were so badly crushed that an amputation would have been justified. Yet, conservative surgery upon the one hand, together with the refusal or reluctance of the patient and his family, on the other, induced the surgeon to undertake, by every effort in his power, the saving of the injured limb, even though

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the possibility of securing even a slight functional result would be hopeless. Then the surgeon, having saved the limb, is sometimes called upon to defend an unjust claim.

When such a situation is at all likely to arise, it would be manifestly wise for the surgeon to call in one or more competent surgeons for consultation. The attending surgeon should then state to the patient or to his family, and in the presence of these consulting surgeons, that an amputation would, in his opinion, be the safest and surest procedure; but that if the patient or his family refuse to consent or are reluctant to consent, then the surgeon should state frankly that he will save the limb, if possible, but that he can not be responsible for the result, which in all probability will mean deformity, ankylosis and permanent impairment of function. So that in any case in which the surgeon suspects that he may some day be confronted in court with an X-ray photograph showing overlapped bones, deformed limbs, or other abnormalities, resulting from his surgical treatment, he should take the precaution indicated and have witnesses to the facts. The result would be to fortify the case at the outset, because no effective, self-respecting lawyer would undertake a malpractise suit in the face of such proof, for the reason that no physician or surgeon, with any standing whatever in the community, would take the witness stand against such proof.

This would be especially true if the surgeon had used the X-ray in arriving at his diagnosis and prognosis originally.

Many suits for damages have arisen against doctors for X-ray burns, and in some cases judgments have been rendered, because the tube has been held too long and too close to the patient. This only emphasizes the importance of stating to the patient at the outset the danger of an X-ray burn. The rule of law applied in these cases is the same as that applied in other actions for malpractise, and is one of ordinary care and prudence. As was said in a recent case (Martin vs. Coutenar, 87 Minn. 197): "The legal obligation of the physician to his patient, where his conduct is questioned in an action of this character, demands of him no more than the exercise of reasonable care and skill, as is usually given by physicians and surgeons in good standing in that community."

The X-ray concerns the lawyer when its use becomes vital in convincing the jury that the claims of his client may be substantiated by a skiagraph of the actual condition.

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There is a wide variance of opinion among doctors regarding the reliability of the radiograph. Many doctors maintain that an X-ray is often an exaggeration, and therefore to be looked upon with suspicion. In part, this claim may be true; but the careful operator can nearly always secure—and especially in cases of fractures of the upper and lower limbs does secure—sharp, detailed skiagraphs from two or more angles, presenting substantially the exact existing condition. In a skiagraph taken antero-posteriorly, a fractured tibia and fibula may show little or no displacement; whereas from side to side it may present a distinct overlapping.

As a practical question, it is almost useless for a surgeon to undertake to explain to the average jury that the X-ray plates are unreliable. If a displacement or overlapping is clearly shown upon the X-ray plate, the jury will invariably believe what they see before them, and if the plates indicate a displacement of the fractured ends, it is reasonably certain that the jury will approve the photographs. Many surgeons also argue that even if a displacement or deformity exists, nevertheless a good functional result may be expected. While this claim is to some extent true, yet it is subject to some infirmity, for the reason that the average jury will invariably conclude that displaced bones are not as strong as nature originally made them. In any event, they are not the same as they were prior to the injury, and the inclination of a jury to allow compensation for injuries increases in proportion to the increase in deviation from the normal. That rule grows out of the right every man has to his own normal bones, and in these days a wrong doer can not put a kink in the live human skeleton, without responding in damages.

For these reasons the X-ray has become valuable to the attorney, and he should in every case of fracture or dislocation resort to its use. Some doctors criticise this suggestion on the ground that a patient would be better off if he remained in ignorance of the real condition of the fracture, especially when a good functional result has been obtained.

The error of this position lies in the fact that a lawyer occupies a wholly different relationship from the doctor. Courts have held that a surgeon may properly withhold from the patient any information which could do him no possible good; but on the contrary would be quite certain to cause him mental alarm and worry. But a lawyer is retained for a wholly different pur-

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pose. He is not consulted to effect a cure, but to determine the value of an injury. If a deformity or abnormal condition exists, and that condition enhances the value of an injury, it is his duty to find it out; and if he purposely refuses to do so and his client should later discover his actual condition, it would certainly place the lawyer in an undesirable position. So the attorney must lay bare the facts and present them exactly as they are.

The usefulness of the X-ray in litigation has only begun, and eventually, with the rapid development that is being made in this new science, it will be resorted to and relied upon in all cases in which the court feels that the ends of justice demand a search beneath the skin. In criminal law it will fulfill an important purpose; likewise in the Probate Court, and in any court if a diagnosis or prognosis can be aided by its use.

Calcification of Fibromyomata of the Uterus.

By IRVING LUDLOW, M. D., Cleveland.
(From the Department of Surgical Pathology, Western Reserve University.)

Extensive calcification of fibromyomata of the uterus seems to be of sufficient infrequency to merit the report of the following case which occurred in the service of Dr G. W. Crile, through whose courtesy it is presented.

The patient, aged 53, single, was admitted to Lakeside Hospital Aug. 24, 1905. The family history had no bearing on the case.

Previous History: Patient had scarlet fever at six years of age, typhoid fever at 10 years and acute rheumatism at 30 years. Menses were always regular and normal in amount and duration. Patient was never very strong during the period of middle life.

Present Trouble: Two years ago (1903) she first noticed a tumor mass in the lower abdomen. It slowly increased in size, the growth being accompanied by some pain in the back and constipation, but no other symptoms.

Operation: On. Aug. 25, 1905, an abdominal hysterectomy was performed. The patient made an uneventful recovery.

Pathological Report: The specimen (Fig. 1) consists of the uterus and tumor, weighing together 900 grammes. The upper portion, comprising four-fifths of the entire mass, measures 14 x 10 x 7 cm. It is very nodular and feels like a calcified mass. The nodules are of varying size and are white in color. The anterior surface is more nodular than the posterior, the peritoneal covering being very adherent to the nodules. The lower portion, consisting of the uterus and smaller nodules, measures 6 x 6 x 6 cm. At its upper border are the tubal openings. This portion is also nodular but not so hard as the upper part. The peritoneal covering is also less adherent. The external os can be seen slightly posteriorly. A cross section of the tumor, made with a saw, presents white, irregular

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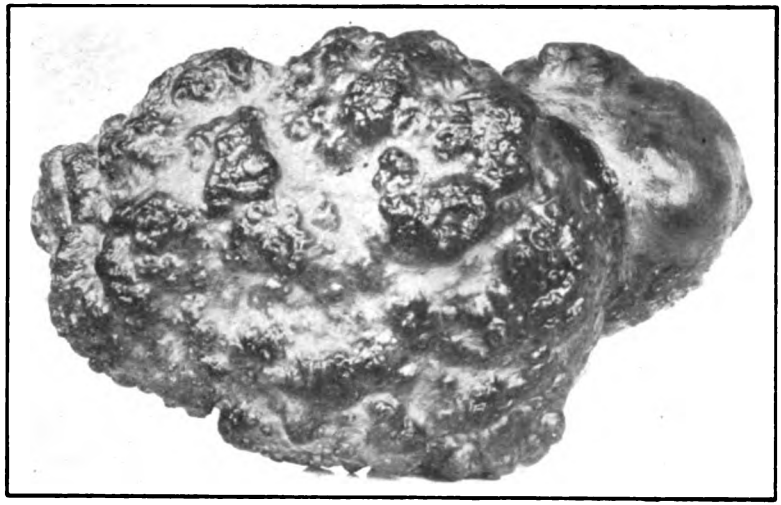


FIG. 1

areas of calcification which, with the included soft tissue, forms a coral-like structure (Fig. 2).

Microscopic Examination: A section from the soft portion of the tumor mass is composed of fibrous and muscular tissue, irregularly distributed. In some portions the fibrous tissue predominates, while in other places the muscle is in excess. For the most part the tissue stains well, but certain parts show varying degrees of hyaline degeneration. The blood supply is very deficient.

In a section from the hard portion of the tumor no distinct muscle fibers can be seen, these probably having undergone fibrous change and then hyaline degeneration. There are a few faintly staining connective tissue fibers, but for the most part this tissue has also undergone hyaline change and necrosis. Here and there throughout the section are irregular areas, which stain a diffuse bluish-violet color with hematoxylin, the areas of calcification. No blood-vessels can be recognized and no bony structure is found in the section.

Chemical Report: Dr H. D. Haskins examined a portion of the calcareous mass, chemically, and found that the ash amounted to 32% of the weight of the moist tissue. Qualitative testing of the ash showed a large quantity of calcium phosphate and a little calcium carbonate with a very slight trace of magnesium. This agrees with Wells[1], who states that the composition of the inorganic salts in calcified areas in the body seems to be practically the same, if not identical, whether the salts are laid down under normal conditions (ossification) or under pathologic conditions, viz.:

	Mag. phosp.	Calc. carb.	Calc. phosp.
Pathologic calcification (Human tuberculosis)	1.2	10.1	87.8
Normal ossification (Human bone)	1.57	10.1	87.4

Report of X-Ray Findings: The shadow made by a thin section of the calcified tumor was very dense (Fig. 3), while with rays of the same penetrating power, bones of the finger, taken for comparison, showed only a slight shadow. No bony structure could be observed in the section submitted to the X-ray examination. My thanks are due to Prof. Harry Hower, of the Carnegie Institute, Pittsburg, Pa., for the X-ray plate.

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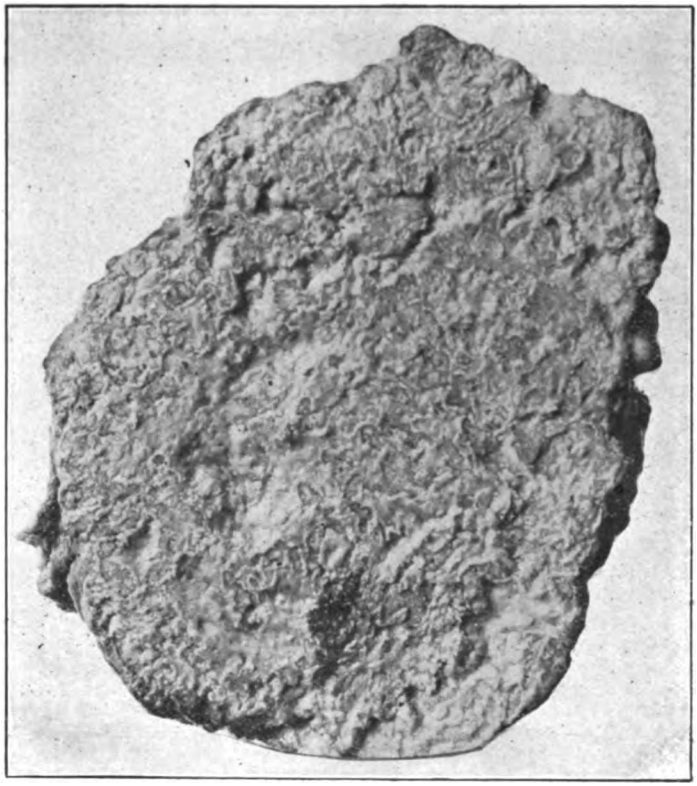


FIG. 2

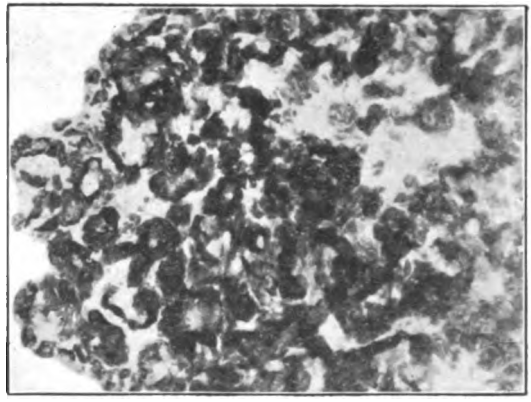


FIG. 3

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A review of the writings upon this subject from the time of Hippocrates is given by Everett[3] who found only 51 cases mentioned; and of these it is questionable whether 18 of them are not reproduced with alterations, leaving only 33 well authenticated cases.

The earlier cases were simply reported as uterine stones, thus Hippocrates relates the case of a Thessalian maid of 60 summers, who during her younger years suffered great pain during intercourse. No complete history of the case is given but we learn that the patient, after having partaken freely of leeks, was seized with intense uterine pains, after which she was delivered of a rough stone the size of a child's head.

Louis[3] in 1753 had collected 18 cases. Velpeau reported three cases. De Coze removed a calcified fibroid with obstetric forceps, the operation being followed by fatal hemorrhage. Säxinger[4] found a stone the size of a child's head which, with much difficulty, he seized with forceps and delivered, producing extensive lacerations which resulted in peritonitis and death.

Böhm of Gunzenhausen, obtained a calcified fibroid weighing five kilograms, from the body of a nulliparous woman, who had died of marasmus. This tumor was encapsulated in the left abdominal region; it measured 13 inches in its longer and eight inches in its shorter diameter. The texture was so dense and compact as to be susceptible of a high polish. It was of a pure calcareous nature, the organic tissue having been entirely absorbed. Its external portion was not so dense as the center. It had encroached upon the bladder to such an extent that it caused the deposit of a calculus in that viscus.

E. E. Montgomery,[5] in 1880, reported a case of multiple uterine fibroids partially calcified. Since that time cases have been reported by Potter,[6] Upshur,[7] Wright,[8] Baer,[9] Cushing,[10] Edebohls,[11] Cavaillon,[12] Mouchet,[13] Withrow [14] and Hallopeau.[15]

Tracey[16] made a study of the degenerative complications and associated conditions in 3561 cases of fibromyomata of the uterus. He found that about 35% had undergone some form of degeneration. Calcareous changes were found in 123 cases or 3.4%; although no report is made upon the extent of the process this number doubtless included all degrees of degeneration. An examination of the Lakeside Hospital pathologic material and records of 210 cases of fibromyomata of the uterus shows three cases of calcification. In one case there was a single, completely

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calcified, submucous mass about three cm. in diameter, the second showed a few small isolated areas of calcification and the third is the case reported in this paper.

In analyzing the etiologic factors of calcification we must consider the following: (1) The calcium salts must come from the blood, where they are held in solution or in suspension by the proteids, either as the carbonate and phosphate, or as calcium-ion-proteid compounds or perhaps both. This suspension, or solution, is in an unstable condition possibly only because of the extremely small proportion of calcium in the blood (about 1:10,000) which renders it liable to be overthrown. (2) There must be retrogressive changes in the tissues. Calcification never occurs in normal tissue except in the formation of bone. Fibromyomata may undergo hyaline, fatty or waxy degeneration, all of which are favorable to the deposit of lime salts, as is also necrosis, especially when absorption is deficient. Most investigators favor the theory of the formation within the degenerated area of certain substances as phosphoric acid, fatty acids and certain proteids which have a special affinity for calcium. When this calcification occurs in local areas, e. g. in the submucous fibroid, we have formed the so-called womb stones. In some cases the deposit commences in the center of the tumor and extends outward, more rarely in the external layers so as to form a shell around the tumor. On account of interference with nutrition, calcification of one portion of a tumor may be accompanied by suppuration in other portions. Finally the process may be so extensive that the tumor can be cut with a saw and the cut surface polished, more usually, however, it is incomplete and forms a coral-like skeleton.

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Tonsil Enucleation with Its Capsule and Description of the Technic.

By WM. B. CHAMBERLIN, M. D., Cleveland

The question of the advisability of removing diseased tonsils seems to have been settled in the affirmative. What constitutes a diseased and what a normal tonsil is, in most cases, easy to judge. In some the judgment may be more difficult, requiring considerable experience. Jonathan Wright, in a recent article on the evolution of the tonsil says that there is such a thing as a tonsil, quite aside from that object of revenue which the clinician contemplates in his office with feelings other than scientific. Certainly we all know of cases in which tonsils of considerable size have persisted through life without causing any inconvenience.

In general, we may say that tonsils which by their size interfere with respiration, deglutition or the proper aeration of the tympanic cavity, should be removed. But it is not always the large tonsil which constitutes the greatest menace to health. Often the small and imbedded tonsil carries with it greater danger to the individual, and we see many cases of recurring attacks of tonsillitis and peritonsillar abscess in which the tonsils, after the subsidence of the attack, project but little beyond the pillars to which an inflammatory process has made them adherent. The question of prophylaxis too is one which must be borne in mind. Greene has lately reported a case in which all efforts to free the mouth of bacilli, following an attack of diphtheria, were unsuccessful until the tonsils had been enucleated. I have on several occasions removed the tonsils, with only beneficial results, during secondary lues on account of the persistence of mucous patches upon the tonsil and in the tonsillar crypts. The investigations of Wood, Ravenel and others have laid stress upon the tonsils as portals of infection in tuberculosis—both glandular and pulmonary. Certainly recurring attacks of cervical adenitis should suggest the possibility of the tonsil's playing an important role in the process. The tonsillar crypts form not only an ideal culture bed for organisms of all sorts, but cesspools as well for the retention of a foul and disagreeable secretion.

Granted then that the decision in regard to the advisability

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of removing the tonsil has been reached, what method shall we pursue? Shall we remove the part projecting beyond the pillars e. g. in tonsillotomy, or shall we remove the gland in its entirety—the complete enucleation? In Vienna and Berlin, in clinical practise at least, the tonsillotome of Mathieu or some modification of it is the instrument of universal use, while London still clings reverently to the guillotine of Sir Morrell MacKenzie. American literature of the past few years has contained no small number of articles in regard to tonsil enucleation as preferable to the older operation, and this preference has in most cases been stated in no undecided terms.

Few, I think, who have had much experience in tonsil surgery, have been altogether satisfied with their results from partial removal. Recurrences of tonsillitis and peritonsillar abscess after tonsillotomy have made them guarded in their promises to patients regarding future immunity, and this liability to subsequent attacks has made patients hesitate before subjecting themselves to an operation which gives them little definite hope of relief. Jackson goes so far as to say that tonsillotomy is an utterly unjustifiable operation and that patients are more liable to attacks after operation than before. That in certain cases tonsillotomy gives relief, is no doubt true. This is chiefly so in children in whom the abnormal size of the tonsil constitutes the entire difficulty. A complete enucleation with capsule intact may occasionally be performed with the tonsillotome, even with no preliminary dissection. To accomplish this, however, the tonsil would have to be practically pedunculated. Such a tonsil, in my experience, is a *rara avis*. The vast majority of diseased tonsils are partially or completely united to one or both pillars by fibrous tissue which has resulted from single or recurring attacks of inflammation. In such cases the portion removed by the guillotine without dissection, unless the pillars were extensively lacerated, would constitute but ⅛ to ½ of the entire organ. It would consist of a thin slice from the internal surface, while the major portion, together with the crypts, would be left behind. With ½ to ⅞ of a diseased gland still remaining in situ, we have little reason to hope that our efforts in preventing subsequent attacks will be successful.

We might compare such an operation with an appendectomy in which only the distal portion of the appendix is removed. Stubbs says that the tonsillotome is to blame for most of the

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misconceptions of the operation and its technic, inasmuch as it is so easy to use and its results are so fallacious, and Jackson further says that nearly all operators at the present day slice off the projecting portion of the tonsil with a tonsillotome, apparently with the mistaken idea that the object is to rid the patient's throat of the mechanical obstruction to the passage of air caused by this projecting portion. Such an operation seals up the glandular tissue of the deeper portion of the tonsil under bands of cicatricial tissue. If the patient has had periodic attacks of acute tonsillitis, he will have them more frequently than before.

One reason then for performing tonsillotomy rather than tonsillectomy is the ease of the one and the difficulty of the other. Jackson regards tonsillectomy as an exceedingly difficult operation to do ideally. Personally, he is satisfied with but few of his tonsillectomies. Certainly my own first efforts were far from ideal, nor are they always ideal at present. I firmly believe, however, that the results even when the operation may not be altogether ideal are far better than those following tonsillotomy. But because an operation is difficult, is hardly a sufficient reason for not doing it. The great misfortune is that a simple operation should in most cases be performed in the place of the more difficult one and should be confused in the minds of the laity under the same name. Another reason for tonsillotomy is the fear of hemorrhage following complete removal. Most authors are agreed, however, that the danger is as great in one case as it is in the other; some even assert that it is less in tonsillectomy. Certainly I have had less hemorrhage from tonsillectomy than from tonsillotomy, at least when the pedicle was severed by the cold snare.

The tonsils are glands composed of lymphoid, supported by trabeculae of fibrous, tissue. They lie at the isthmus of the fauces between two vertical bands, the palatoglossus and the palatopharyngeus muscles. These muscles constitute the so-called pillars of the fauces. When approaching their origin in the uvula they unite, often to a considerable degree, to conceal the upper part of the tonsil. This union of the pillars above, as well as their size and adherence to the tonsil below, may give one a very erroneous idea of the true size of the gland. This can easily be revealed by causing the patient to gag. Above, the tonsil is but loosely attached and forms the floor of the supratonsillar fossa. The crypts are eight to 20 in number. In the

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superior third they extend downward and outward and empty into the supratonsillar fossa while in the lower two-thirds they extend horizontally, for the most part to the capsule. The capsule forms the external boundary and rests upon the superior constrictor of the pharynx. The tonsil is further separated by the styloglossus and stylopharyngeus muscles from the internal carotid artery which lies nearly an inch externally and behind. The blood-vessels enter in the lower two-thirds and pass, for the most part, through the substance of the superior constrictor of the pharynx.

The function of the tonsil is a subject of much speculation, considerable investigation and, of course, endless dispute. Whatever its function may be, certainly none but beneficial results have been reported following its proper removal. From clinical evidence, then, its function would seem to be a minor one—similar in large part, to that of the other lymphatic glands.

The tonsil may be enucleated under local or general anesthesia. In adults and even children over 10 or 12 years, who are tractable, and when an adenotomy is not to be performed at the same time, local anesthesia is preferred. The technic of the operation is the same in either case, though the position of the patient is, of course, different.

For local anesthesia the tonsils and pillars are painted with cocain dissolved in adrenalin until superficial sensation and reflexes are abolished. A specially long hypodermic needle is now plunged through the anterior pillar opposite the center of the tonsil and its point carried externally just beyond the capsule. Through this needle a one percent cocain solution, to the dram of which five to 10 drops of adrenalin have been added, is injected. If the injection returns through the crypts, we are within the capsule and must go further. If it is in the proper position, as indicated by the resistance to the piston, there will be no return flow through the crypts. Only one to two drops are needed. A like amount is then injected beneath the upper and lower thirds. Anesthesia and anemia are complete almost immediately.

Ether is the safest general anesthetic in tonsil operations. The frequent occurrence of the so-called status lymphaticus as well as the many fatal cases reported from chloroform anesthesia, make the latter inadvisable. After anesthesia is complete, a Whitehead gag is inserted and opened as far as the jaws will

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permit. This gag gives an unobstructed view and possesses the decided advantage of always remaining fixed in position. The operation may be done with the head turned on one side or hanging over the end of the table at an angle of 45° to the long axis of the body. The latter position is preferable in many ways —no artificial or reflected light is necessary, while the blood gravitates to the nasopharynx. In this position, the operator sits facing the top of the patient's head. The assistant with tongue depressor in the left hand, keeps the tongue free from the field of the operation and sponges with the right hand. The tonsil is seized at about the middle of its anterior surface with the rat-toothed forceps of Fein and considerable traction exerted. This

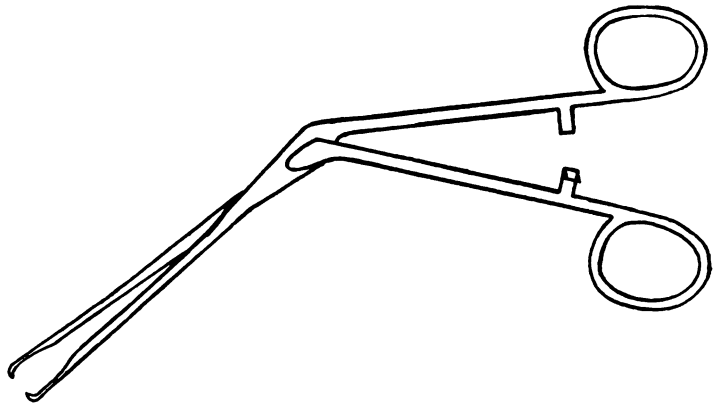


Fig. 1. Modified nasal forceps of Fein (V. Mueller & Co.), eight inches long. The jaws have rat teeth like the ordinary dissecting forceps. The handle is provided with a lock. In dissecting, the hand is free from the field of operation.

will give one an accurate idea of the size, for it will differentiate clearly the margin of the anterior pillar. It will also show the extent to which the upper portion is inserted behind the pillars into the supratonsillar fossa of the soft palate. The size will often be surprising. In grasping the tonsil with the forceps, care must, of course, be exercised in choosing a place where the tissue is not too friable. Firm tissue, however, can always be found. With an ordinary nasal scissors, an incision is now made through the mucous membrane at the center of the margin of the anterior pillar and this incision is carried carefully downward and outward until the white, glistening capsule is brought clearly into view. By means of scissors, straight or curved, as well as by blunt dissection, the incision is carried downward as well as upward

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and behind the tonsil until the latter is entirely freed from its lateral attachments. It will now be attached externally by only a narrow pedicile at its lower two-thirds. The nasal forceps is used meanwhile as an ordinary dissecting forceps. After the tonsil is thus freed, it is drawn into the mouth and grasped with a modification of the well known tonsil forceps of Andrews. The

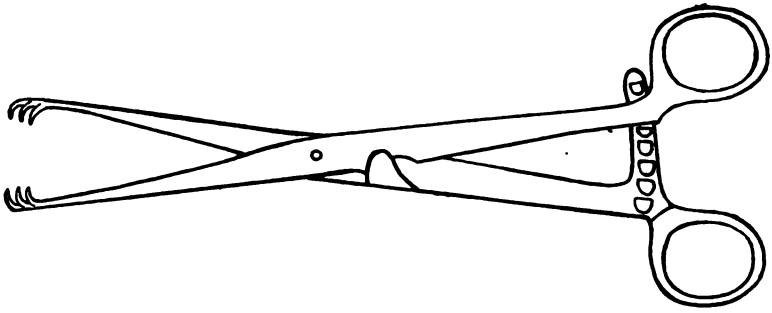


Fig. 2. Modified tonsil forceps of Andrews, eight inches long (V. Mueller & Co.). The jaws are the same as in the Andrews forceps, but the handles are provided with a ratchet lock. This obviates the necessity of completely closing the forceps—thereby crushing the tonsil if it is large. The snare loop may be passed over the handles or the forceps may be inserted through the loop before the tonsil is grasped.

blades of the forceps are inserted into the upper and lower pole and the handles locked. Care must be exercised in grasping only the tonsil and none of the surrounding tissue. The loop of the snare of Marquis, armed with number seven steel piano

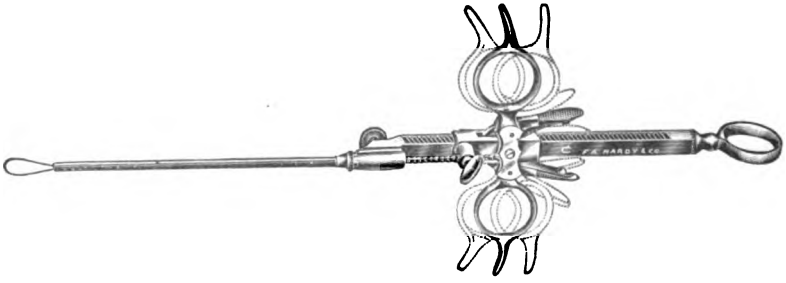


Fig. 3. Marquis snare (F. A. Hardy & Co.), 10 inches long, armed with No. 7 steel piano wire. The advantage of this snare is that it is light, strong enough for all purposes, cuts slowly or rapidly as desired and is easily manipulated with one hand.

wire, is now passed over the handles and around the pedicle, the loop being gradually narrowed as it comes into position. This snare possesses the advantage of being small, light, decidedly powerful and easily manipulated with one hand. As the wire

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loop is slowly closed, the tonsil is drawn inward by means of the clamp, while the wire follows the line of least resistance. This will be immediately external to the capsule, if the preliminary dissection has been properly done, and the tonsil with capsule intact will be completely shelled from its bed.

In my hands, hemorrhage has been much less after the use of the snare than with the use of the tonsillotome, knife or scissors. In fact, the only severe hemorrhage I have ever had was in a case in which the pedicle was amputated with the tonsillotome. There have been no cases of secondary hemorrhage although this is spoken of by some authors as one of the dangers from the use of the cold snare. Under local anesthesia, the pain is somewhat more with the snare than with a sharp cutting instrument. However, if the cocainization has been properly done, it is slight in either case. I have thought too that with the snare there was more subsequent soreness. The dissection should at all times be kept close to the capsule. If it is carried beyond the capsule, surrounding tissue will be injured, resulting in severe hemorrhage or permanent contractures if the pillars or soft palate have been extensively lacerated. If the dissection does not include the capsule, some of the gland will be left in situ and recurrences will quite likely occur. After removal, the fossa should be examined to see that there is no bleeding and that no tags, especially at the lower pole, are left behind. The tonsil should also be carefully examined to see that the capsule is entire. If a probe is introduced into a crypt, it will, in most cases, pass to the capsule. If it passes through the tonsil, some of the capsule together with tonsillar tissue has not been removed.

In a tonsil operation, with the head on the side, the field must be illuminated by means of an electric lamp and the ordinary head mirror or by an electric head mirror specially constructed. The lower tonsil should be operated upon first.

Considerable has been written of late concerning the enucleation of the tonsil by the finger. No doubt this is possible in some cases just as it may sometimes be possible to remove adenoids with the finger-nail. I think most of us will agree, however, that the profession has advanced beyond the age of finger-nail surgery and that such an operation has little to offer in its favor.

Conclusions:

I. Tonsillotomy may give relief in certain cases, but ton-

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sillectomy affords the surest promise of cure.

II. There is no greater danger of hemorrhage in tonsillectomy than in tonsillotomy. There is always a danger of hemorrhage in any tonsil operation.

III. Any method is a good one so long as it aims at complete removal. The choice of method is a matter of individual skill or preference.

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The Diagnosis and Treatment of Brain Tumor.

By ARNOLD PESKIND, M. D., Cleveland

(Continued from May and June issues)

Tumors of the corpus callosum may also be latent or produce only general symptoms. Usually, however, severe mental perturbations appear early, especially when the foremost frontal fibers are involved. The central portion produces phenomena accompanying neoplasm of the sensomotor zones, while if the growth invades the posterior part of the callosum, it will produce occipitocerebellar symptoms. The neighboring parts are frequently involved. A valuable diagnostic sign of tumor of the callosum is that it frequently involves the inner surface of both hemispheres, though unequally so, and that signs of nerve compression, so common in basal growths, are absent.

Tumors of the basal ganglia, unless the internal capsule is involved, usually produce no symptoms or only the general ones of tumor. There are no precise physiologic data as to the functions of these ganglia. Tumors of the caudate nucleus have been accompanied by propulsive desires to run and other automatic movements. Tumors of the putamen and the lenticular nucleus have been accompanied by symptoms of bulbar paralysis, by dysarthria and by uncontrollable outbursts of laughter, also by paralysis, but this probably was due to their close proximity to the internal capsule, the pyramidal bundles and the island of Reil.

Tumors of the optic thalami, since the latter lie close to each other, produce either unilateral or bilateral symptoms. Sensomotor disturbances are common and may be associated with motor defects. Ophthalmoplegia, mydriasis and disturbances of

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pupillary accommodation are met with, but they may result rather from the encroachment upon the subjacent ganglia than from the effect on the optic thalami. Cardiovascular phenomena are also seen.

Tumors situated anteriorly in the internal capsule produce crossed hemiplegia, while those situated in the posterior third cause crossed hemianesthesia. The intimate relation of the internal capsule with the surrounding ganglia favors the production of rather complicated sensory manifestations.

Tumors affecting the corpora quadrigemina are characterized by ophthalmoplegia and incoördination, symptoms said to be pathognomonic. The position of the third and fourth nerves as they lie near the aqueduct of Sylvius, and their connection with the superior peduncles of the cerebellum, which decussate below the aqueduct and cross within the red nucleus, will explain the above symptoms. The ophthalmoplegia is not always complete and in some cases it is intermittent.

Nystagmus and impairment of vision have been noticed in growths of these bodies, also hemianopsia, but these symptoms were probably due to simultaneous involvement of the external geniculate bodies.

Deafness has also been observed in growths of the corpora quadrigemina but how much this was due to the involvement of the anterior geniculate bodies or to the pressure upon distant or more remote organs could not be definitely stated.

Tumor of the epiphysis is characterized by early involvement of the trochlear nerve and only later the other ocular nerves may become affected. Nystagmus is frequent and is best produced when the eye is directed upward. Protrusion of the eyeball with ataxia and tremor are frequent symptoms.

Tumors of the crura cerebri are characterized by contralateral and alternating symptoms of irritation, such as paralysis of the limbs and motoroculi, and produce the so-called Benedict's symptom-complex. Sensation is usually simultaneously affected. When both third nerves are involved the history of the case, as to which nerve was first involved, will reveal the original site of the tumor. Forced movements have been observed.

Tumors of the pons will cause crossed and alternating hemiplegia of either the fifth, sixth or seventh nerves and cause corresponding phenomena. Conjugate deviation of the head and

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eyes towards the opposite side from the tumor has been noted—the patient looks away from the side of the tumor.

Tumors of the medulla oblongata may be latent, usually the seventh, eighth, ninth, tenth, eleventh and twelfth cranial nerves are involved in addition to the conduction paths from the spinal cord to the brain or vice versa.

Tumors of the third ventricles are accompanied by a peculiar drowsiness and psychical disturbances.

Tumors of the cerebellum should present no difficulties in diagnosis, as this part of the brain has been most thoroughly investigated. Nevertheless, the similarity of symptoms produced by diseases of various other parts of the brain will often create hindrances to the exact interpretation of the presenting symptoms.

A great number of tumors, especially those which do not penetrate the cerebellar cortex, run a latent course for an indefinite time, or produce but vague irritative symptoms. Usually, however, the cardinal symptoms of tumor are pronounced and early. Vertigo is often precocious and constant. Vomiting is severe. Choked discs are more constantly present than in tumor anywhere else in the brain and through pressure and increased edema of the third ventricle, blindness may be one of the earliest symptoms. So is nystagmus. The headache is basal, but there may be frontal neuralgia through pressure on the facial nerves. There is usually tenderness along the occipital bones and rigidity of the muscles of the neck. The tenderness is usually, but not invariably, more marked over the site of the growth. Opisthotonos is not uncommon. The position of the head is peculiar in some forms of cerebellar growths, the patient dreading to alter it in the least for fear of aggravating some distressing symptom.

The gait is cerebellar. It is the drunkard's, the zigzag gait. Incoördination and altered muscle-tonus is characteristic, while sensation remains almost unaffected—a pathognomonic sign of tumor confined to the cerebellum. The "assynergie cérébélleuse" of Babinsky is a valuable sign and it may be unilateral though usually it is bilateral and involves also the trunk. This latter condition deserves special notice and is explained by the anatomic arrangement of the fibers of the posterior roots which supply the muscles of the trunk. As the growth advances, tumors usually produce pressure symptoms even at a distance, thus the

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frontal lobes may be crowded and cause nerve compressions with varying functional disturbances.

From a differential diagnostic viewpoint, these negative symptoms deserve mention—i.e., the usual absence in cerebellar growths of Romberg's and Westphal's signs as well as the Argyl-Robertson pupillary reaction.

Topographically speaking a cerebellar tumor is probably confined to one hemisphere and is homolateral with the body symptoms. In such cases, the patient has a tendency, when he makes an effort to move, to fall towards the side of the lesion. When the growth affects the middle lobe or both hemispheres, bilateral body symptoms develop with the progress of the tumor. The patient then has a tendency to reel backwards in his attempts to walk, sometimes to rotate the body about its axis, especially when the vermis is involved.

Tumors in the various fossae produce symptoms characteristic of disease of the overlying brain substance and, by the involvement of the cranial nerves which traverse the path of the growth, produce unmistakable symptoms showing the location of the brain tumor. Thus, tumors of the anterior fossa usually involve the olfactory, the opthalmic division of the fifth and the optic nerve. Symptoms of compression or destruction of the frontal lobes may also accompany growths of this location.

Tumors of the middle fossa are liable to involve almost all the cranial nerves, except the first, ninth, tenth, eleventh and twelfth, causing pronounced and grave motor and sensory disturbances.

Tumors affecting the posterior fossa produce symptoms depending on the site of the neoplasm, whether it grows anteriorly or posteriorly to a line passing through the foramen magnum, i.e., whether it is pressing upon the front of the medulla and pons or upon the overlying cerebral mass or whether it is pressing upon the medulla posteriorly or crowding the cerebellum. Almost all the cranial nerves, with the exception of the first and second, are liable to become involved in various degrees by tumors of this part of the skull.

Tumors which grow in the vicinity of the sella turcica may spring from the bone itself or grow from the pituitary body and produce the well known trophic changes characteristic of irritation of this gland. The chiasm is exposed to the injurious

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effects of the growth and corresponding symptoms may be expected as the growth bulges towards the cranial cavity.

Permit me in this place to explain the numerous abrupt and often hurried presentations of the various topics of this article. The time limit allotted for the reading and discussion of papers is altogether inadequate for a subject of this scope. Besides this, the nature of the subject is so extensive that completeness in the execution has not been attempted.

PATHOLOGIC DIAGNOSIS.

The most characteristic points of difference between the symptoms of a tumor situated in one part of the brain from those produced by a tumor located in some other region would be a proper subject for review in this place. But this task would involve too much repetition and require more time than can be spared. Therefore, the subject of diagnosis must be concluded with a few words about the kinds of tumors which may confront the clinician. The treatment of most cases frequently hinges upon the probable nature of the growth. Is the tumor benign? Is it malignant? Is it accessible? Is it amenable to any treatment or is it beyond the reach of any intervention? are questions of great moment and the answers to these depend not only on the location of the tumor but also on its structural peculiarities.

The most frequent brain tumors are: glioma, sarcoma, syphiloma and tuberculoma. Then follow: carcinoma, aneurism, angioma, osteoma, fibroma, papilloma, lipoma, psammoma, cholesteatoma, cysticerci, ecchinococci and actinomycosis with tumor symptoms. These are all met with in various degrees of frequency but only a few will be specially mentioned.

Glioma, an ectodermal neoplasm, is always endogenetic as regards the nervous system with which it is morphologically homogeneous. Proliferating as if it were a hypertrophy of the affected part, it infiltrates the normal nerve tissue and becomes inseparably confluent with it. Outside of the nervous system there is no glioma. The seat of predilection of glioma is in the hemisphere, in the endyma of the ventricles and in the base of the brain, chiefly in the pons and cerebellum. Hopeless tumors these are, from a prognostic viewpoint.

Sarcoma, mesodermal in structure and origin, is heterogeneous to the nervous system. It springs from the connective tissue or bony coverings, or vessels of the brain. It grows into the nervous system as if it were a foreign body displacing the

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aboriginal structure. It remains throughout its course an unassimilable invader. Hence, when accessible, it is often easy of extirpation with the most satisfactory results, as far as recurrence is concerned. At times, however, it will penetrate the deeper structures of the brain, following the course of the cerebral arteries. Even then sarcoma remains clannishly distinct. Gliosarcomata have been described but are rather rare and are probably due to the coexistence of both kinds of tumor. The exact nature of certain sarcomata is perplexing at times, even those superficial growths which issue from the diploe or dura close to the surface of the skull and corrode and perforate the latter. One such case, the specimen of which is in my possession, is fresh in my mind. This was a pulsating sarcoma which was diagnosed as aneurism by very able surgeons who advocated its ligation. At postmortem it proved to be a sarcoma, probably springing from the diploe. The growth protruded through an opening, about 3½ by 2½ inches, in the upper part of the skull close to the median line, and was lying and pressing on the brain. Various vessels were infiltrated along its course. Nodules were found in both lungs, in the liver and in the thyroid gland.

Syphiloma is often impossible to distinguish from sarcoma and the history of its infectious origin may be the only guide to its probable nature. The influence of medicinal treatment may be corroborative though not necessarily convincing.

Tuberculoma is more frequently met with in childhood than in adult life and is more destructive to the surrounding brain tissue than any other growth. It usually accompanies tuberculous meningitis and is a local manifestation of a general infection. It is more irritating, causing early softening, and runs a more rapid course than sarcoma or glioma. It is, however, also more liable to spontaneous recovery, a very favorable fact worth mentioning. It may be multiple but it may also be solitary and behave like any other tumor as to mode of onset and rapidity of growth. It may be accessible to surgical interference with curative results following. The seat of predilection is the base of the brain, along the course of the blood-vessels.

Carcinoma is usually secondary to a growth somewhere else in the body and is not liable to cause much error in diagnosis.

Aneurism, when it attains some size, gives rise to symptoms of tumor with focal symptoms. Its usual seat being the internal carotid, the second and third nerves and also the sympathetic

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fibers on the site of the aneurism become first involved and the discs, in the beginning, will be choked on the same side. Sometimes other symptoms common to aneurism may be elicited by the physical signs.

TREATMENT OF BRAIN TUMOR.

Considering the anatomo-pathologic relations of brain tumors and their inaccessibility, one would scarcely expect much aid from the physician. Nevertheless, a great deal can be done in the way of relieving, and sometimes of even curing, this affection which is accompanied by so much suffering and distress. The treatment of brain tumor can be divided into medicinal and surgical, and either can be subdivided into curative and palliative treatment.

The curative medicinal treatment of brain tumor is preeminently applicable in syphiloma, in which the institution of heroic and persistent antisyphilitic treatment will, at times, restore the patient apparently to perfect health. Tuberculomata, when beyond the surgeon's grasp, will sometimes yield to a prolonged restorative and tonic regimen. In time, caseation and even absorption of the tuberculous mass will bring about a permanent recovery, as far as the apparent health and the usefulness of the patient is concerned. The most important duty of the physician in inoperable and incurable cases is the palliative treatment, to relieve the pain and other symptoms which are harassing and distracting. I know of nothing more pitiful than to watch the sufferer with the terrible pain of brain tumor, when it is persistently boring, piercing and gnawing ceaselessly day after day and night after night. It is something horrible indeed. In my experience with these cases, the tar products and bromids afford better relief than the opiates. Other symptoms must be met with as they arise.

The great advancement in modern surgery has opened the real way of solving the problem of treatment in most cases of brain tumor. The time is not far distant when those parts of the brain, at present inaccessible, will be accessible to the surgeon. Brain surgery, though practically of recent date, has already made wonderful progress and I shall refer but briefly to the possibilities of operative interference in these cases. Neither the details of technic nor the results of operative procedures will be considered, nor will the indications or contraindications for

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operation be reviewed. I shall merely refer to the surgical means employed. Curative measures are practised—craniotomy and extirpation of the tumor—when the topographic and anatomopathologic diagnosis of the tumor warrant such a procedure. Palliative means are resorted to in irremovable tumors, either by partial resection of the tumor or by decompression. The latter does not necessarily imply surgical interference at the site of the tumor, but at any place where relief from pressure symptoms can be obtained. This may be accomplished either by the resection of a piece of bone, thus lessening the intracranial pressure, or by the withdrawal of some of the cerebrospinal fluid directly from the brain cavities or by lumbar puncture, a procedure to be most carefully considered before it is executed.

2414 East 55th St.

The Conjoint Meeting at Cedar Point

The approaching meeting of the Academy of Medicine of Cleveland, the Academy of Medicine of Toledo, and the County Societies of the Third, Fourth, Fifth and Sixth Districts to be held at Cedar Point on Thursday, July 15, 1909, promises to be a great success.

It has seemed wise to those in charge of the arrangements to provide a program with but very few papers so as to give ample opportunity for discussion and to enable those attending the meeting to take advantage of the opportunities for recreation afforded by Cedar Point. Accordingly but two addresses will be delivered. Dr. John B. Murphy, of Chicago, will discuss "Infections of Bones and Joints from the Standpoint of the General Practitioner and General Surgeon," a topic of great importance to every medical man, since the detection of such lesions at an early stage is of such paramount importance to the patient.

The other address will be given by Hon. Judson Harmon, Governor of Ohio, the title has not as yet been announced but it will undoubtedly be one of special interest to the profession.

The great success of the similar meeting held at Avon Beach Park in the summer of 1907, warrants the belief that the coming meeting will prove even more profitable, both from the standpoint of mental stimulation as well as from the physical benefits to be derived from a day off, free from the cares of professional work.

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The Cleveland Medical Journal

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EDITORIAL

The Mechanism of Hemolysis in Certain Less Considered Aspects.

In the last decade the literature of hemolysis has grown beyond all bounds. Pathologists, physiologists, bacteriologists, surgeons, internists (this barbarous word seems nowadays too convenient to be dispensed with) have vied with each other in swelling the interminable list of agents which have the power of causing the liberation of the blood-pigment from the colored corpuscles. Besides an almost countless host of chemical hemolytics (such as ether, alcohols, chloroform, benzole, the saponins, etc.), the most varied biological products, (spider poison, bee poison, bacteral toxins, normal sera and tissue liquids, and the so-called "immune sera" obtained by injecting the corpuscles of one species into animals of another species) have been more or less deeply investigated. For the

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explanation of certain of the properties of the biological group the famous side-chain theory of Ehrlich has been applied with, upon the whole, remarkable success, although it perhaps begins at last to show signs of breaking down under the strain of the immense accumulation of facts which it has been called upon to cover. But with all the restless activity of research in this domain, the detailed study of the intimate mechanism of the process of hemolysis, the unveiling in logical sequence of the actual changes which take place in the erythrocyte under the influence of any given hemolytic substance and which lead to the liberation of the blood-pigment, has been surprisingly neglected. Recently, however, there have been symptoms that this inquiry is beginning to excite an interest more adequate to its importance. It is to certain of the more general aspects of the mechanism of hemolysis that we desire briefly to direct attention.

Take, for example, the classical instance of the laking of corpuscles by an alien serum. It has been quite clearly proved that in the action of many such sera two bodies are concerned, although their chemical nature has not been as yet satisfactorily defined. One of these, the so-called amboceptor, is relatively stable when heated; the other, the complement, is inactivated even at a temperature of 56° to 60° C. The conditions under which the appropriate amboceptor is fixed by the erythrocytes and the conditions under which the complement, in the presence of erythrocytes which have already taken up amboceptor, unfolds its action have been extensively investigated. The same is true of some of the chemical laking agents, especially, perhaps, saponin and ether. But when these conditions have been determined a new series of questions immediately present themselves. What, for instance, are the changes, chemical, physical or physico-chemical, which occur in the erythrocyte under the action of amboceptor-complement on the one hand, of saponin and its congeners on the other? Why do these changes, whatever they may be, cause the corpuscle to part with its hemoglobin? Are the essential changes produced by the various hemolytic agents always fundamentally the same, or are they fundamentally different for each group or even for each member of a given group? If the process is always fundamentally the same under the conditions of our test-tube experiments, are we

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justified in concluding without further evidence, as we are perhaps only too apt to do who live so much under the twin tyranny of the incubator and the centrifuge, that the same is true of the physiological hemolysis constantly going on in the body on which, to cite only one of its consequences, the normal production of bile-pigment depends, and true also of that pathological hemolysis associated with such conditions as paroxysmal hemoglobinuria, certain of the anemias and perhaps the so-called hematogenic forms of jaundice.

A fairly definite answer, we believe, can be given to some of these questions. A very general, perhaps a universal consequence of the action of hemolytics, whatever their nature, is increased permeability of the corpuscle to water. The easily observed fact that in so many forms of laking the corpuscles swell up before the hemoglobin escapes, proves that the entrance of water is an important step in the process. It is not only an important step, but when the amount of water taken up by the erythrocyte passes a certain limit, it is of itself sufficient to complete the liberation of the blood-pigment. As to the manner in which hemolytic agents favor the entrance of water into the corpuscles, there are many reasons for thinking that they act by producing changes in the chemical and physical condition of certain constituents of the superficial layer (envelope) of the erythrocyte as well as changes in its interior. Saponin and ether, for example, are known to be solvents of cholesterin and lecithin, and cholesterin and lecithin are important constituents of the stroma and envelope of the colored corpuscle. It is easy to understand that if a portion of one or both of the substances is dissolved or altered in its physical or chemical condition without being actually dissolved by the hemolytic agent, profound changes may be produced in the permeability of the corpuscle to water and to the salts dissolved in the serum or other liquid in which the erythrocytes are suspended. Where the process is less clearly demonstrated, as in the case of the biological hemolytics, there is also evidence that changes in the permeability of the corpuscles to water, due to chemical or physico-chemical actions, play a rôle in producing hemolysis. The most probable explanation of the action of the water, once it has been admitted in more than a certain amount into the corpuscle, in determining the exit of the blood-pigment is as follows: In

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the interior of the erythrocyte the pigment does not normally exist in true watery solution but in the colloid condition in the form of what the physical chemist calls "gel" and the plain cook a jelly. When more than a certain proportion of water is added to the gel the colloid substance goes into solution. There is reason to believe that this is only one of the events that follow the entrance of water into the corpuscle. Not only does the blood-pigment pass from its jelly-like condition into aqueous solution but it alters its character in doing so and now becomes capable of crystallization. The net result, then, of the water action is that the native colloid blood-pigment, which some writers term hemochrome, becomes changed to a crystalline pigment hemoglobin, and that this crystalline pigment dissolves in the water. Whether the hemochrome is chemically altered in this process, perhaps by the splitting off of a constituent which normally links the pigment to the stroma, or only physically altered is not quite settled, although there is some evidence for the former view. The important point, however, is that after the entrance of a sufficient amount of water an aqueous solution of hemoglobin is present for the first time in the history of the corpuscle, and the next step in the hemolytic process, the extrusion of this distinctly foreign substance seems a natural and indeed, since there is no reason to suppose that the stroma has any affinity for crystalline hemoglobin, an inevitable one.

The change in the permeability of the erythrocyte which leads to the entrance of an amount of water beyond the permissible limit is not the only way in which hemolytic substances act. Although this change would of itself suffice to ensure complete liberation of the blood-pigment, there are facts which indicate quite clearly that in addition many laking agents, perhaps all, exert also a more direct influence on the normal relations of the native blood-pigment to the stroma. Substances like ether and saponin, for instance, which have the power of dissolving lipoids (like lecithin, cholesterin, etc.) seem to act in two ways, by disorganizing the envelope through solution of its lipoids and thus increasing its permeability to water, and by helping to dissociate the hemochrome-stroma complex by exerting a pull on the lipoids of the stroma, while the water simultaneously exerts a pull on the pigment.

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The interesting conclusion follows from this view of hemolysis, that the erythrocytes, normally so perfectly adapted to the plasma in which they float, may when the conditions on which their equilibrium with it depends are altered, be rapidly and inevitably destroyed by that very plasma itself. It is indeed the very fact of the exquisite adaptation of the liquid and the cell for a strictly regulated exchange of material which constitutes the danger when the regulation is upset. A liquid like mercury which is not adapted either to give anything to erythrocytes in contact with it or to take anything from them would not cause hemolysis, even if the permeability of the corpuscles for water or sodium chlorid were increased to any extent. The continued survival of the erythrocytes in an aqueous solution of salts and proteins like the blood-plasma, nay more, the protection of the corpuscles up to a certain point by the plasma against the attack of extraneous hemolytic agents, are facts we are prone to take so much for granted as to forget that they depend entirely upon a most delicate adjustment of the permeability of the corpuscles for essential constituents of the plasma. Disturb those relations to a sufficient degree and the plasma becomes a poison to the erythrocytes not much less deadly than distilled water. When we add to blood a hemolytic substance and see that presently the blood-pigment has left the corpuscles we are apt on first impulse to attribute the whole effect to the foreign material added. We are apt to say that the saponin, the ether, the alien serum has laked the blood. In a certain sense this is true. But it is not the whole truth. In reality the hemolytic agent has acted in an essential degree, although not exclusively, by overthrowing the equilibrium between the corpuscles and the aqueous solution of certain substances in which they are suspended. In the presence of another liquid, of water-free glycerin, for instance, the action of the hemolytic substance would have been very different. To say that the foreign substance alone causes the hemolysis is no more accurate that it would be to say that a man swimming strongly in a rough sea who sinks when hit and stunned by a piece of wreckage was drowned by the blow and not by the sea. No doubt it is true that but for the blow he would have continued to swim. Yet in reality he loses his life because he is environed by a medium deady to him as soon as his power of adjustment

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to it has been too much diminished; on land the blow would have stunned but would not have killed him. In like manner, to glance for a moment at one phase of the natural decay of the corpuscles within the body, an erythrocyte may float secure in its watery environment through many rounds of the circulation. But its security is not static like that of a log floating on the water. It is dynamic, a triumph of perfect physico-chemical poise, as the security of the swimmer or the tight-rope dancer is dynamic, a triumph of perfect neuro-muscular poise. The time, however, arrives when either through changes in the erythrocyte itself (the changes of cellular senility as we may call them), or through changes in the environing medium, or through a combination of the two, the adjustment is upset, and the erythrocyte is now destroyed by the plasma in which it has so long lived. It is quite possible, although this has been for the most part overlooked by writers on the relations of hemolysis to the anemias and the hemoglobinemias, that changes in the plasma not necessarily associated with the production of any specific hemolytic substance, may sometimes play an important pathological rôle. These changes may be quite local. If, for example, the normal relations of absorption and excretion in any part of the intestine are disturbed, so that too much water in proportion to dissolved solids is taken up from the gut or too much solid matter in proportion to water is excreted into it, an area of local "hypotony" may be established, that is to say, a vascular area in which the osmotic concentration of the blood-plasma is too low. Interference with the excretory activity of a portion of the kidney or with its blood-flow may similarly lead to the development of an area of local hypotony. In such a region the normal hemolysis may be increased, especially by the destruction of erythrocytes already handicapped by their "age" or which have suffered deterioration in some other way. The assumption ought not to be made, although this is often done, as of something self-evident, that in every case in which hemolysis is demonstrated a specific hemolytic substance necessarily exists in the plasma. Nor when such a substance has been proved to be present ought we straightway to conclude that the hemolysis depends entirely upon its action and not at all upon merely quantitative changes in the plasma, more or less transient it may be, and more or less localised in the vascular system.

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The Etiology of Summer Diarrheas in Infants.

Pediatrists have for a long time been looking to the bacteriologists for a solution of the problem of the causation of the so-called diarrheal diseases of infants, particularly those which are concerned with the frightful mortality of young children in the summer months throughout the world. Although the best efforts of many experts have been devoted to the study, no satisfactory solution has thus far been offered. Many forms of bacteria have at various times been thought guilty, but in each instance further investigation has failed to substantiate early hopes. Recent studies of the dysentery bacilli, of the Shiga and Flexner-Harris group, in this connection, were very encouraging for a time, but they involved so many contradictions, being found not only in sick artificially fed, but also in healthy breast fed babies, that further efforts in this direction have been abandoned, particularly as serum treatment, based on this theory, has signally failed.

The conclusions thus far arrived at from the bacteriologic viewpoint is that these diarrheas are infections, either the germs themselves or their absorbed toxins causing the damage. According to Holt: "No one form of bacteria can be assigned as the cause of this group of diarrheas. With existing knowledge it seems probable that there are a number of organisms present in the intestines which, under favorable conditions, multiply to such a degree as to produce very serious disease." He also states that the infectious nature of these diseases is almost universally admitted. In a recent exhaustive work on the nutrition, nutritional disturbances and nutrition therapy of the child, Czerny and Keller have brought forward very convincing arguments to combat the theories just stated. They contend that diarrhea is not an entity, but merely a symptom of the defense reaction of the organism and is caused by the irritation of the intestinal mucosa by the acids produced by the decomposition of the fat or carbohydrate of the infant's food by bacteria, this decomposition occurring either previous to or after administration but chiefly by the first method. All forms of nutritional disturbances attended with diarrhea are grouped under the term "alimentary toxicosis," adopting the term suggested by von Jaksch, and which includes those conditions variously called cholera infantum,

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gastroenteritis, summer complaint, summer diarrhea, ileocolitis, etc.

Their theories are based on the experimental work of Bokai, published in 1898, who showed that various acids resulting from food decomposition can produce not only diarrhea in animals, but in small doses a catarrh of the intestinal mucosa and in large doses even inflammatory change. As lactic acid is admitted to be harmless to the infant's intestine, the pathogenic properties must belong to the acids arising from decomposition of the fat.

While admitting the possibility of disturbance from peptones formed in the same way, they assert that the conditions favorable for their production in milk fed to infants are rarely present, therefore they may be considered negligible.

They strongly affirm that the condition is not a general infection due to the introduction either of germs or their toxins into the organism, basing their opinion on the results of their personal experiments.

After an exhaustive review of all theories proposed, they arrive at the following conclusions.

The determining factor for the pathologic processes in the intestinal tract are the acids produced by the decomposition of the carbohydrates or the fats. These can arise in the food before administration or be formed from undecomposed food by the bacteria already in the intestines. While impure milk plays the largest part in the etiology, gross errors in the quality and quantity of pure food are contributing factors.

The resulting intoxication symptoms have several causes, of which only a part are as yet known. It may be accepted as proved, that one part of the symptoms are caused by loss of water and salt, another through resorption of the constituents of the intestinal contents, which normally do not pass, and a third through acidosis.

Special toxins which pass through the intestinal mucosa have not as yet been demonstrated, nor is it necessary to presume an unknown toxin, since practically all symptoms can be traced to disturbances of the intermediary metabolism which are formed as the direct result of the pathologic processes in the intestines.

Lack of space forbids a review of the symptoms, which are of very great interest and importance, except to quote the

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rule, that "In general, the occurrence of every attack of vomiting and an increase in the number of stools should at once be considered as the beginning of a severe illness, if they are accompanied by a lowered tension of the abdominal wall and a decrease of general tissue firmness, with paleness of the skin and even a slight increase in body temperature."

As to therapy, the methods suggested coincide very well with those measures empirically determined upon by the adherents of the infectious theories. Great stress is laid upon prophylaxis, to insure a pure milk supply and to guard against too great quantity and too much fat.

For the attack itself, the following rules are laid down:

(1) Stop all food and completely empty the intestines.

(2) Begin the feeding with breast milk or with reliable, clean, cow's milk, poor in fat and carbohydrates, in the smallest amounts and with long feeding intervals.

(3) In severe cases start the feeding with whey.

(4) In the intoxication stage give a food which is designed solely for the control of the intoxication and intestinal symptoms, in the reparative stage, a food which favors increase of weight and digestion.

Aside from lavage, intestinal flushing and cathartics, as castor oil, rhubarb and manna, no reliance is placed on any drugs, except strophanthus, caffein or camphor in case of heart failure. The various bismuth and tannin preparations are considered to be entirely without value.

Whether these views are conclusive or not, future developments will determine. They doubtless will not escape severe criticism and perhaps calumny. They certainly offer a novel and interesting contribution to a subject too long enveloped in a nebulous haze.

Persistent Hereditary Edema of the Legs (Milroy's Disease.)

Our attention has been recently directed to this remarkable condition by the paper of Hope and French in *The Quarterly Journal of Medicine,* 1908, Vol. 1. The first series of cases was reported by Milroy under the title "An Undescribed Variety of Hereditary Edema" (*New York Medical Journal,* 1892, Vol. 56). In six generations of 97 persons the disease affected 22 individuals. Since then quite a number of cases

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have been reported by Meige, Rolleston and others. The patients are usually in good health, males and females are about equally affected and as yet no pathological basis has been found to account for the edema. The swelling of the legs usually appears shortly after birth, but its onset may be delayed until puberty, or even later. Once established it is permanent. No other portion of the body shows any signs of edema. The extent of the swelling varies in different cases; sometimes the feet and ankles alone are involved, but it usually extends as high as the knee, and in rare cases as high as Poupart's ligament. The upper limit of the edema is sharply defined. The swelling increases in the standing posture, is painless and there is no redness of the affected parts. There is no tendency to varicose veins. By careful bandaging, as illustrated in some of the cases of Hope and French, the swelling can be kept in some measure under control, and the patient lead an active life even until he has reached quite an old age. A very interesting and unusual feature, especially observed in some of the cases reported by Hope and French, was the occurrence of acute attacks of pain, redness and swelling of localized areas of the affected extremities. This local condition was accompanied by headache, vomiting, chills and fever. These acute attacks usually lasted about a week and were similar to the crises that occur in angioneurotic edema. It is to be hoped that careful postmortem study of some of these cases will throw some light on the true cause of this trophic disorder.

Lymphangioplasty in Lymphatic Obstruction.

The various forms of lymphatic obstruction have in the past been susceptible of little or no relief. About the only surgical measure that was applicable was removal of the affected part, and amputation for elephantiasis of the extremities and ablation of the enlarged scrotum have been frequently performed.

Some of the other forms of lymphatic obstruction, such as the enlargement of parts following repeated attacks of erysipelas, the lymph stasis and elephantiasis of the upper extremity secondary to carcinoma of the breast with axillary involvement, the neurotrophic edema of Milroy, etc., likewise baffle efforts at relief.

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It is obvious that restoration of the natural lymph channels is impossible.

Handley (*International Medical Annual*, 1909, pp. 413), whose work relative to the mode of dissemination of carcinoma has attracted attention and has modified our views in regard to this matter, has devised a procedure for the cure of lymphatic obstruction which is simple and easily executed.

His plan is to introduce into the edematous part or organ a number of silk threads which pass from the area in which the lymph vessels are blocked to an adjacent region in which the vessels are normal. The theory is that these silk threads act by capillarity and thus convey the lymph from the diseased to a normal region, from which the normal lymph vessels then take up the fluid and carry it into the circulation.

Small incisions are made and the silk is carried through the subcutaneous tissue with long probes; the incisions are then closed. Needless to say perfect asepsis is absolutely necessary.

Handley reports two cases in which marked improvement followed this operation, both as regards the amount of pain and swelling.

It hardly seems correct to apply the term "lymphangioplasty" to this procedure inasmuch as it is not a plastic operation on a lymph vessel. Handley believes that the silk may be expected to remain unabsorbed for 10 years in the tissues.

Department of Therapeutics

Conducted by J. B. McGEE, M. D.

Fever: The *Medical Record* for May 22, states that the medical profession is divided into three camps, so far as the interpretation of high temperatures in infections is concerned: some consider it to be always harmful; others interpret it as a reparative reaction only; still others think that it may work both benefit and injury to the organism. Liebermeister represents the school that sees nothing but injury from high temperature, but experimental work soon showed that the bad effects attributed by him to high temperature were due to other causes. Though proteid metabolism is markedly increased in infectious fevers, high temperature plays but a subordinate role in this result, while moderate temperatures probably are of no influence whatever. That the changes in pulse and in respiration in infectious diseases are due to the toxins produced and not to high temperature has been amply proved by many investigators. Welch has shown that prolonged

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hyperthermia produces no effect upon the functions of the heart or the blood-pressure, while Romberg and Passler have demonstrated that it is the toxins produced by infecting microörganisms that are responsible for vasomotor paralysis, with lowering of the blood-pressure, leading to death in animals experimented with. Other experiments by Rolly and others have shown that neither hemoglobin nor the cellular constituents of the blood are affected by prolonged artificial hyperthermia. So far as reaction to disease is concerned their experiments tended to show that high temperature was favorable to the progress of the disease, for in animals it increased phagocytosis as well as the amount of agglutinins and other protective substances in the blood. Rolly's conclusion is that rise in temperature accompanying infectious disease is productive of more benefit than injury to the organism. It simply marks a very intense reaction to injury, aimed at the destruction of agents, or the neutralization of their toxins. Clinically, therefore, his views oppose any extreme antipyretic measures whether medicinal or hydrotherapeutic. He would try to control only very high temperatures or such as are accompanied by marked nervous disturbance and in no case would he have recourse to such measures as the Brand bath for typhoid fever, for instance, but would be satisfied with mild drugs or with moderate application of hydrotherapeutic measures.

Vasodilators: In the *Quarterly Journal of Medicine* for April, Edwin Matthews treats of vasodilators in high blood-pressure. His conclusions are that: 1. (a) Nitroglycerin or liquor trinitrin, sodium nitrite, potassium nitrite, erythrol tetranitrate and mannitol hexanitrate are all powerful vasodilators: with cobaltinitrite of potassium he did not find a vasodilator action. (b) Their action can be definitely ascertained as regards the time of initiation, amount of fall produced and length of time the action lasts. (c) These nitrites produce a fall in pressure only in certain cases of hypertension. In others they produce no action. 2. These nitrites are all powerful vasodilators in suitable cases, but well defined differences exist among them. As to the time in which the pressure begins to fall, with nitroglycerin it begins in one minute, with sodium and potassium nitrites in 5 minutes, with erythrol nitrate in about 5½ minutes and with mannitol nitrate in about 12 minutes. As to the amount of fall in pressure, there is only a difference of 6 mm. between the least and the greatest. The amount of fall produced by each is about the same and with liquor trinitrin there is a very sudden and prompt action, not so sudden with sodium and potassium nitrites, more prolonged with erythrol nitrate, and lastly a very gradual and slow action with mannitol nitrate.

As to the rise in pressure after the fall, with trinitrin the pressure begins to rise again almost immediately after a maximum fall has been reached, and the effect of the drug completely passes off in 30 minutes; with sodium and potassium nitrites the maximum fall is reached in about 10 minutes after the initial action, and is maintained for 40 to 50 minutes and the entire effect does not pass off for about two hours; while with erythrol and mannitol nitrate the effect persists for four or six hours. The rise of blood-pressure in chronic Bright's disease and generalized

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arteriosclerosis he found to be invariably controlled by the nitrites in the earlier stages, but ultimately a stage is reached, seen most particularly in advanced chronic Bright's, when the nitrites produce little or no response. In heart and kidney disease when the blood-pressure is raised and when, in addition, marked edema is present, nitrites do not act well, but after the edema has disappeared, the usual vasodilator action may reappear.

He found that such symptoms as headache, pain, giddiness, etc., were alleviated or disappeared with a reduction of pressure amounting to about 30 mm. and if this fall could be maintained the general condition improved. As to dosage, when a single dose to be repeated in half an hour is presented, he recommends two minims of the trinitrin solution as best. In suitable cases two grains of sodium and potassium nitrites produce a reduction of just over 30 mm. of Hg. and this action will last two hours, and only after this is it necessary to repeat it: no benefit is obtained by increasing the dose and a less dose will not have the desired effect. A dose of one-half to one gain of erythrol nitrate produces benefit, and the effect lasts about six hours, but as a rule he recommends the smaller dose to start with. Mannitol nitrate he has used only in one grain tablets; these produce the necessary reduction of pressure and effects, and with it he has not observed any unpleasant effects.

Acute Rheumatism: Samuel E. Earp in the *New York Medical Journal* for May 1, reports his line of treatment in 12 cases of acute rheumatism, in which complete relief of pain followed within 48 hours without the use of opium, and none were confined to bed more than 10 days. The joint affections were multiple and there were no deaths. While the remedy used is not new, it is possible that when it has been used and when such good results did not follow, the doses may have been too small. He first uses calomel, followed by Dorsey's mixture of magnesia, until the bowels move freely. This magnesia mixture is composed of a saturated solution of Epsom salt and one dram of aromatic sulphuric acid to the ounce. This is the original Dorsey's mixture and since the acidity is too great if large doses are used, Earp gives an improved formula which is more pleasant and preferable. Thirty grains of sodium salicylate are given every three hours until pain is relieved or there are unpleasant head symptoms. The dose is then dropped to 20 grains and when the joints can be used freely without pain or stiffness, 15 grain doses, four times a day, are continued for a week. When the patient considers himself well, 10 grains three times a day are given for two weeks. Oil of wintergreen is applied to the joints twice a day and they are dressed in cotton and oiled silk or rubber sheeting. In one case sodium bromid was used to produce quiet and in tachycardia the ice bag was used. In no case was there an untoward influence on the heart from the remedy. Ice in the mouth, sodium chlorid on the tongue and milk as a vehicle were necessary in only three instances to overcome a rebellious stomach. If the stomach cannot be controlled he has in several instances used 60 grains by the rectum. If the rectum is sensitive and the fluid is not retained, he applies a two percent solution of cocain two inches above the sphincter muscle.

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Syphilis: In the *Therapeutic Gazette* for May, the internal treatment of syphilis is considered. Although to one who keeps fairly abreast of modern literature it might seem that the internal treatment of syphilis is a thing of the past and that the accurate dosage, the prompt results and the comparative innocuousness of hypodermic medication apparently having been so fully proved, this method is now the one of choice. It is probable, however, that 90% of cases, the world over, are treated solely and exclusively by internal medication and that in the vast majority of cases this medication is entirely efficacious in so far as combating the secondary manifestations of the disease is concerned. Hypodermic medication is attended by certain unavoidable risks which are either absent or distinctly less marked when the drug is given in another way. Among these risks may be mentioned embolism, which has resulted fatally in many cases; local infection which, however, can scarcely be considered as unavoidable; extreme and crippling pain; and danger of salivation. The newer pharmaceutical preparations have, to an extent, lessened some of these risks, but in spite of the propaganda in favor of the hypodermic administration of mercury, it still remains the exceptional rather than the habitual way of using the drug.

Phenolphthalein: The *Medical Council* for June states that new laxatives appear so frequently and with such regularity that one cannot help but wonder how they all originate. One of the best of the new ones of the last few years is phenolphthalein, which, though not a new drug by any means, has at least never had any extended use as a laxative. The story of the discovery of its laxative properties is as follows: Following its use, by the German Government, in oleomargarine to distinguish it from genuine butter, the Austrian Government caused second quality wines to be so marked for purposes of distinction and the diarrheal disorders following the use of such wines showed that the drug, even in small doses, was laxative to man and in larger doses was cathartic. It is not a proprietary drug and it is inexpensive: in proper doses it produces a large copious and natural action of normal consistency and does not cause any other symptom of any kind. If the dose is too large the motion is watery, that is all. It is especially good in chronic constipation and can be used indefinitely without harm or without losing its effect. The dose, in capsules, is from one to fifteen grains as required. Some patients react to very small doses while others may require the maximum. Action is obtained in about 10 to 15 hours.

Tuberculin: *Medical Bulletin* asserts that the efficiency of H. B. Weaver in the *Monthly Cyclopaedia and* tuberculin as a curative as well as a diagnostic agent has been proved to such a degree that it has passed beyond the pale of controversy. The essence of the method consists in so regulating the dose, as to quantity and time, that no reactions of a serious nature shall occur and the patient's opsonic power shall be kept at "high tide." He believes that moderate reactions of 99° to 100° F. of fever with slight physical symptoms are conservative and do good to the patient. When tuberculin was first used

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it was believed that strong febrile reactions were necessary, but experience has proved this to be incorrect; violent reactions are due to overstimulation. The curative action of the tuberculin is due not only to the reaction in the local area of infection, but it has a stimulating effect on the body cells, "a stimulation" says Trudeau "which results in the production of some sort of antibodies in these cells, as well as possibly an increased activity of the phagocytes." For these reasons a small dose very gradually increased and continued for a long time is the best method of treatment possible. The most desirable cases and those which he has found to yield good results are: (1) The incipient and moderately advanced cases, mostly afebrile with a temperature ranging at times not over 100° F. and whose nutrition is good. (2) Uncomplicated first and second class cases, with fever, although bacilli are found in the sputum. (3) Fibroid cases without febrile reaction. (4) Cases in which fever is due solely to the toxin of the bacilli and will not abate under rest and hygienic treatment; in these, small tentative doses may do good. Contraindications comprise: (1) Acute miliary cases. (2) All third stage cases with mixed infection. (3) Second stage cases with bad nutrition and mixed infection. (4) Hemoptysis,—when hemorrhage occurs it is a signal to stop the use of tuberculin temporarily, until all signs of danger from hemorrhagic lesions have gone. (5) Heart disease, where we fear compensation might be lost by active stimulation from tuberculin. (6) When an increased frequency and weakness of the pulse are present without any recognizable heart lesions. (7) Weak and greatly emaciated patients with a feeble and fast heart action. (8) All complications of internal organs and nervous diseases (Ringer).

A daily record of temperature should be kept before beginning treatment. The injections should be given in the morning and the patient should not exercise during the day. He should keep a two hour record of temperature each day until the next injection. Alcohol and all intemperance must be sedulously avoided. At no time and under no circumstances, however, does he consider tuberculin treatment superior to the dietetic and hygienic and open air treatment, *it is only an adjunct.*

Academy of Medicine of Cleveland

EXPERIMENTAL MEDICINE SECTION.

The forty-fourth regular meeting was held Friday, May 14, at the Cleveland Medical Library, Geo. W. Crile in the chair.

The program was as follows:

(1) Some Early Human Embryos and the Evidence Given by Them as to the Relationship Between Menstruation, Ovulation and Fertilization. (a) N. W. Ingalls; (b) F. C. Waite. (To appear in full in the Journal).

(2) Clinical Evidence as to Ovulation and Menstruation, A. H. Bill. (To appear in full in the Journal).

(3) The Hemorrhage in Ruptured Ectopic Gestation, H. Robb. (Appearing in full on page 379.)

J. J. R. Macleod, in the discussion, said that the experiments of Goltz

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seemed to disprove the influence of the nervous system in controlling the corelation between the ovaries, uterus and mammary glands: he found that in several instances pregnancy occurred in animals which had had complete ablation of the lower part of the spinal cord and yet pregnancy and lactation took place normally. Starling's experiments tended to prove that the activity of the breasts depended not upon a nervous corelation with the pelvic organs, but upon the presence in the blood of hormones which were secreted into the maternal blood by the fetus. Starling injected extracts of embryos removed from pregnant rabbits into virgin rabbits and observed a gradual hypertrophy of the breasts of the latter with, in some cases, a secretion of milk-like substance. Microscopically the hypertrophy of these glands resembled that occurring in normal pregnancy. In F. C. Waite's paper one view was quoted to the effect that menstruation and ovulation were quite independent functions: it was very difficult to believe this and nearly everyone felt sure there must be an intimate corelation. The further study of the question from the standpoint of comparative anatomy afforded the greatest hope for the solution of the problem.

J. J. Thomas thought that, from a clinical standpoint, some definite knowledge as to the relation between ovulation and menstruation would be of the greatest value. The most difficult obstetric cases he had had were in women whose pregnancies had probably continued for an additional month. During this month the child would continue to grow, the shoulders especially would broaden and the head would become harder so that even with a normal pelvis labor would probably be very difficult. According to Hirst, no woman should be allowed to go two weeks over the expected date of confinement without inducing labor: the difficulty was to determine accurately just when labor should occur. In a recent case labor was expected on April 13 but it did not occur until May 2: labor was normal, the child weighing 6¼ pounds. Conception in this case probably occurred just previous to the first missed period. That menstruation could occur independently of ovulation was suggested by a case he had had of a woman who had been married 22 years and had always menstruated regularly and first became pregnant at the age of 47.

F. C. Waite said that there was much uncertainty in the evidence from young embryos. These were usually either themselves abnormal or the maternal organs were not in normal condition, otherwise there would have been no abortion. There was no knowing how long the small embryo had been dead and if it were very young, e. g., two or three weeks old, the percent of error from this uncertainty in estimating its exact age might be relatively great.

It was very difficult to judge the age of an embryo by comparative studies of embryos of known age of other species of animals, since the development in two species, even closely related, was not necessarily parallel. It was impossible to experiment along this line with human beings, but much might be learned by studying other species, especially the primates. The rule of His was inaccurate as some of his premises were based on false data. In estimating the probable date of delivery it should be remembered that in lower mammals, at least, the duration of gestation was somewhat dependent on nutrition and might vary, being shortened by high feeding and lengthened by low feeding. While ovulation and impregnation might occur at any time in the cycle, the imbedding of the ovum could take place during only a limited period in primates owing to the type of placentation, which was much more complicated than in some other mammals in which it was known that ovulation and menstruation were not coincident; this factor should therefore be considered in comparative studies. The solution of these problems depended largely upon the amount of material available and he therefore, urged that clinical men preserve all human embryos they might get in their practise, in 10% formalin or 80% alcohol and send them to the laboratory where they would be studied.

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H. C. Crumrine said that the number of ova so greatly exceeded the possible number of menstrual periods that ovulation might possibly occur several times to each menstruation. At operation several ova were usually to be found almost ready to rupture.

G. W. Crile thought that some of the points in H. Robb's paper deserved further consideration. His experience with transfusion cases showed that the percent of hemoglobin of the donor did not cease falling when the loss of blood was stopped, but continued to drop for an additional 12 hours or more. This was supposedly due to the gradual restoration of the volume of the blood by the increased absorption of the tissue-fluids by the vessels. This would, of course, dilute the blood and lower the percent of hemoglobin. As a general surgeon he was not quite prepared to allow an internal hemorrhage to continue. If the bleeding point were accessible he believed the best results would be obtained by an early operation. He was in favor of an immediate operation for ruptured ectopic gestation and had operated upon 52 cases in this stage with one fatality. He had found that in experimentally producing shock in dogs it was almost impossible to bleed them to death. The burden of proof lay with the advocates of the delayed operation to show that hemorrhage was *not* going on.

H. Robb in reply asked how many times the previous speaker had actually noted hemorrhage going on in a ruptured ectopic pregnancy. It seemed to be a fixed idea with most surgeons that in every case there was a bleeding vessel to contend with. If this were really the case immediate operation, of course, would be necessary in most instances. On the contrary, however, he believed that an actual bleeding vessel was rarely met with until manipulations of the abdominal contents, carried out during the preparation for or at the operation, had displaced the clot. His total experience with ectopic pregnancies was somewhere near 100 cases and he had never encountered an actual bleeding vessel of any size until after he began manipulation in the abdominal cavity.

In the early cases in which a positive or highly probable diagnosis of ectopic gestation could be made before rupture or before any severe hemorrhage had occurred, immediate operation was called for. Patients of this class, however, usually presented themselves when already suffering from the effects of a tubal abortion, and were almost always in a good condition, so that, as a rule, an operation could be safely performed. He did not feel, however, that even in these cases there was any special necessity for sacrificing everything to too great haste in carrying out an operation, although it should be performed as soon as the necessary arrangements could be made.

With the treatment of patients, however, in a state of collapse following the rupture of an ectopic gestation there was still quite an adversity of opinion. In this connection he would like to refer to an analysis of 575 cases of ectopic gestation taken indiscriminately from the literature of the last five years which showed some interesting facts. Of this number, operation was done within 24 hours of rupture 115 times, with 26 deaths, or 22.6% mortality. Operation was not done within 24 hours of rupture 461 times, with 31 deaths, or 6.7% mortality. In 75 grave cases with immediate operation there was a mortality of 34.6%: in 27 grave cases with deferred operation, no mortality.

Again, as quoted by Simpson, Hartog stated, that from a complete review of the statistics on this subject in Germany no more than 5% of the victims of ectopic pregnancy died from hemorrhage at the time of rupture. The operative mortality in cases of ectopic gestation in 1,176 cases in 25 different clinics was 8%.

He fully believed, however, that all cases of ectopic gestation should be regarded from the surgical standpoint, but he was opposed to immediate surgical measures being carried out while the patient was in a condition of marked shock.

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With reference to G. W. Crile's criticism of the hemoglobin index as not being an indication of the cessation of the hemorrhage, he would say, that he was not familiar with the hemoglobin findings in patients following the transfusion of blood, but he did know what took place when the pelvic vessels of dogs were incised: namely, that as soon as the hemoglobin remained practically stationary, if the abdominal cavity were reopened a well-defined blood-clot would be found about the incised vessels and the pedicle, and the bleeding would have ceased. And so far as his experience had gone in women suffering from a ruptured ectopic gestation he also knew that the same findings could be demonstrated.

ACADEMY MEETING.

The sixty-seventh regular meeting was held at the Cleveland Medical Library, May 21, 1909, the President, W. H. Lower, in the chair.

The Secretary read a communication from the Cleveland Medical Journal Company, requesting the cooperation of Academy members in making the Journal a success. The members could help greatly by noting the advertisements in the Journal and whenever possible, patronizing the advertisers.

The program was as follows:

1. Essentials and Non-Essentials in Physical Diagnosis, Richard C. Cabot, Boston, Mass.

Attention was drawn to those details which should be noted in a minimum, routine, physical examination of all patients. Beginning at the head and passing downward the various points requiring investigation were reviewed, special stress being placed upon the following:

The presence of tophi in the ears, as an indication of gout, should not be overlooked. The throat should always be examined and the gums for the presence of a lead line; the characteristics of the latter were described. The pulse should be taken simultaneously in both radials and it would seem advisable to determine the blood-pressure in all cases. The position of the apex beat and the size of the heart were important, and it should be remembered that the true location of the apex was outside the point of maximum impulse. The differentiation of a true cardiac murmur, associated with heart disease, from a cardiopulmonic murmur was most important. Fine rales in the lungs could be best demonstrated by having the patient cough after a deep expiration, following a deep inspiration. Palpation of the abdomen could be greatly facilitated by the immersion of the patient in a hot bath which would relax the muscles very satisfactorily. The determination of the percent of hemoglobin by the Tallquist scale was usually all that was necessary in a routine examination of the blood: this test was sufficiently accurate for practical purposes. In urinalysis the amount passed in 24 hours, color, specific gravity and amount of albumin were important: the quantitative estimation of urea and the microscopic examination were, as a rule, unnecessary. The size and position of the stomach should be noted but the chemical examination of the gastric contents could be dispensed with in most cases.

He wished to outline in this address what he considered to be a rigid minimum test, requiring not over 15 minutes, as a routine procedure: if one investigated all the points mentioned in the textbooks the examination would take too much time and the results would be discouraging.

C. F. Hoover, in the discussion, said that the decision as to what constituted the essentials in physical diagnosis must be settled by each man for himself in each case. The heart and the liver were the two most elusive organs in a physical examination. The determination of the location of the apex impulse was very essential but often its displacement was misleading. He had several times found it in normal individuals in the sixth interspace outside the nipple line and yet the heart was not enlarged, the base being at the fourth instead of at the third rib and

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the right border in the midsternal line. In cardiovascular disease the estimation of the blood-pressure was very necessary: a small artery such as the radial was unsatisfactory for palpation but after practise the blood-pressure could be estimated to within 10 or 20 mm. Hg. by palpating the femoral artery. If the radial alone were examined one would overlook nearly all cases of arteriosclerosis in the early stages when the discovery of the condition was most important. Accentuation of the aortic second sound was not a reliable indication of high blood-pressure: in one instance there was no accentuation with a pressure of 350 mm. and in another with 280 mm. there was none. Those two were early cases, before the aorta was much involved; later, however, the second sound bebecame accentuated and even palpable.

J. P. Sawyer said that in the routine examination the points of danger should be investigated. The interpretation of the findings was the essential factor. Certain things should be done regularly, e. g. the examination of the ankle jerk as well as the knee jerk, as just pointed out. A vast amount of time had been wasted in urinalysis and he was glad to hear the positive statements made as to the small value of the microscopic examination of urinary sediment in many instances. There was no doubt as to the value of the physical examination of the stomach contents as compared with the chemical examination, but he would not go quite so far as the speaker in belittling the value of the chemical examination: the physical characteristics should be far more thoroughly observed.

2. The Emmanuel Movement, Wharton Sinkler, Philadelphia, Pa. (Appearing in full on page 375.)

R. C. Cabot in the discussion said that one or two mistakes of facts should be corrected. The newspaper report was very inaccurate. Dr Worcester, since the beginning of his trouble, had been treated by the best physician available and had not resorted to osteopathy. There had been no small bone dislocated, but a slight slipping of the sacrum at the sacroiliac joint which occurred after carrying a heavy weight on his back. The displacement was corrected under ether and the sciatica, which had been present since the injury, was immediately relieved. Later the displacement recurred and was again corrected. He did not think that the keynote of the treatment was hypnotism. Suggestion had been used a good deal, and he thought too much, but for the last year and a half, suggestion had played a minor part. Explanation, straight talks and occupation had been the main methods of control. Dr Worcester did all this work which had been of a moral and religious type. The majority of physicians did not profess themselves competent to do this or to re-educate a patient's faith while the minister, owing to his special training, could accomplish it better than the doctor. Dr Worcester had never wanted to carry out the treatment alone but always under the direction of a physician.

Rev. T. S. McWilliams thought that the caricature of the Emmanuel Movement in the paper had been admirably touched up by the previous speaker so as to make a pretty correct portrait of it. There were no clinics at Calvary Church. The modest work that was being done there was the work of an educational, moral and religious institution, to give mental, moral and spiritual aid: that only was being attempted.

Rev. Dean DuMoulin wished to obtain the opinion of those who were in a position to know, as to what place this Emmanuel Movement should have in the work of the clergy and whether he, representing the ministerial office, had any right to ignore it. He knew that it was very much in the popular mind: A man had requested him to attend his wife saying that she had tried the Swedish movement and now wanted the Emmanuel Movement. That appealed to him as being the popular opinion in regard to the Emmanuel Movement. He had wondered, as he looked into the matter and conversed with his brethren, if the clergy might not use suggestion and affirm assertion in the way of combating immoral habits appearing in the young. Any possible agency or instrument that

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could be placed in his hands to fight that tendency of evil he would feel justified in using. If there were any possible agency to help combat the advances of evil then he proposed to employ it to the best of his ability.

T. A. Burke thought the Emmanuel Movement might be defined as a treatment by psychotherapy on the part of the clergy. He did not think it should get into the hands of those not properly qualified. If the use of such treatment were confined to men as well qualified as Dr Worcester there would be little or no danger from it. The dangers lay in breaking away from these lines. Psychotherapy should be encouraged, but it should remain in trained hands.

W. Sinkler replied that in referring to the illness of Dr Worcester, he had simply quoted what the newspapers had said and gave it for what it was worth. He had a very high regard for Dr Worcester personally and felt that if all persons engaged in the Emmanuel Movement were like him there would be no difficulty, but he thought that there was danger that irresponsible persons might take up similar work. There were three points to be considered.

First: That doctors were better fitted by their training and education than any others, to use psychotherapy.

Second: That clergymen should have enough to do in taking care of the spiritual welfare of their parishioners to keep out of medical affairs.

Third: That irresponsible persons were liable to take up this kind of treatment.

CLINICAL AND PATHOLOGICAL SECTION.

The sixty-first regular meeting was held Friday, June 4, 1909, at the Cleveland Medical Library, W. B. Laffer in the chair.

R. A. Bolt reported the case of a child, seen at the Babies' Dispensary, with two lumbar herniae. This child was born at full term, had been breast fed and was well developed. At four months of age the mother noticed a swelling in the left lumbar region, and later another appeared several inches above the left groin. These swellings had persisted, and grown gradually larger, being particularly prominent when the baby cried or strained at stool. No history of injury to the left side. The child had always been well and strong. On examination two rather symmetrical ovoid swellings were discovered in the left lumbar region. These were especially evident when the child cried or coughed. There was a distinct expansile impulse at such times. The tumors were smooth, soft and readily reduced on manipulation. They were resonant on percussion. No distinct hernial ring could be felt where the breach occurred in the abdominal wall, but there appeared to be more of a general lessening of muscular tone at the sites of the swellings. One of the tumors appeared very close to the area of the triangle of Petit, midway between the iliac crest and the left costal margin. The other was in the anterior axillary line about two inches above Poupart's ligament, and extended forward to the midpoint of Poupart's and about 1½ inches above it. When the child was standing and straining the swellings were about the size of small hen's eggs.

Lumbar hernia appeared in the lateral region of the abdomen between the iliac crest and costal arch. It resembled the ventral variety in seldom presenting a distinct neck. It might be: (1) Congenital, due to widening either of Petit's or of Grynfelt and Lesshaft's triangles or to a hereditary muscular defect. (2) Acquired, following some congenital weakness of the wall, due to distention from gastric disturbances; crying; straining on account of constipation or phimosis; weakening of the wall by abscess; or as a postoperative sequence. (3) Spontaneous from no apparent cause. The base of Petit's triangle was the iliac crest, the sides the latissimus dorsi and the external oblique. Grynfelt and Lesshaft's triangle was bounded above by the twelfth rib, internally by the internal oblique and behind by the quadratus lumborum.

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E. O. Houck reported a case of abortion followed by torsion of the pedicle of an ovarian cyst. The patient was a colored woman, married, who had had three normal labors. In March, 1909, she thought she was five months pregnant but she had had no disorders of pregnancy except that the abdomen seemed rather large. On March 27 she was jostled in a crowd and suffered some abdominal pain: this became worse and she saw her physician. The same night, the pains being very severe, he was again called and upon examination found evidences of pregnancy but no cervical dilation; a mass, giving a fluctuating wave, was felt in the lower abdomen but no exact diagnosis was made. The patient remained under observation as abortion seemed inevitable. Pain continued with vomiting, temperature 101° F., pulse about 110, and a chill. By March 29 the cervix was somewhat dilated, otherwise patient's condition was the same. She was sent to St. Ann's Hospital the night of March 30 and early next morning was delivered of a five months' fetus. After delivery the pains persisted continuously with severe vomiting, fever, abdominal distention and tenderness, especially in the right iliac region. The vomiting ceased after gastric lavage, and a high enema proved very effectual. The distention and tenderness became more marked, however, and her general condition worse; pulse 110, temperature 101½° F., tongue moist. March 31 she was seen by H. H. Powell and F. E. Bunts: no definite diagnosis was made but right sided tubal abscess, right tubal pregnancy and appendicitis were considered. April 1 dullness was noticed in right flank, not varying with change of posture. Ovarian cyst with twisted pedicle was considered but not definitely diagnosed. April 2, at Charity Hospital, F. E. Bunts removed a large ovarian cyst with twisted pedicle, springing from the left side but lying on the right. The sac was very congested and nearly gangrenous; it contained about one quart of grumous fluid. Recovery was rapid and uneventful.

This case was of interest because of the diagnostic difficulties, and of the size of the tumor which would, no doubt, have given serious trouble during delivery at term.

Davis (*Surg., Gyn. and Obstet.*, May, 1909, reported a case of ovarian cyst with twisted pedicle complicating pregnancy and discussed the whole subject fully, quoting statistics by McKerron who, in 1,290 cases, found torsion of the pedicle of an ovarian cyst during pregnancy in 12½% and during the puerperium in 22 7-10%. In considering the treatment of such tumors obstructing labor his conclusions were that the only safe procedure was the removal of the tumor and the completion of labor; as had been successfully carried out by Spencer in one instance. There was danger in attempting to dislocate the tumor to permit delivery: rupture of the sac might result, with an ensuing peritonitis if the cyst were a dermoid. Puncture of the sac had also been attempted but was also dangerous, as in a case reported by Hohl in which a dermoid was punctured; the contents escaped and set up a peritonitis. Ovarian tumors with twisted pedicles should be removed as soon as diagnosed, whether during pregnancy, labor or the puerperium: the results of operation for ovarian tumors complicating pregnancy were sufficiently good to warrant such a procedure and the symptoms of twisted pedicle rendered haste imperative.

The program was as follows:

I. Calcification of Fibromyomata of the Uterus with Report of a Case, A. I. Ludlow. (Appearing in full on page 398.)

A. H. Bill, in the discussion, recalled one case he had seen in Bumm's clinic in Berlin. The growth was the size of the head of an eight months' child. The operation was done per vaginam and after the tumor was separated it had to be delivered with obstetric forceps as a grasp on it could not be obtained with volsella forceps.

N. S. Scott was surprised to hear how few cases had been reported; calcification in other parts of the body was not rare. He had removed

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one fibroid showing calcified plaques. He thought this change must be fairly frequent but that it was either overlooked or was not reported when found. Calcification was often the end result of a tuberculous process and he asked if any signs of it were found in this tumor. He also asked as to the difference in the radiographs of calcified and of ossified tissues.

A. I. Ludlow in reply said that tuberculosis in fibroids was very rare and was not found in this specimen. He said that the report simply showed that no bony tissue was observed.

2. The Breus Mole with Presentation of Specimens, A. H. Bill. (To appear in full in the Journal).

E. O. Houck asked if it would not often be a difficult matter to determine the existence of such a mole in a given case of abortion. The ovum was so often distorted or destroyed that it was not easy to identify its component parts.

A. H. Bill replied that it seemed remarkable that more cases had not been reported. Even in the large clinics such as in Vienna, where all material was carefully worked up, comparatively few cases had been noted. He could find reports of only 35, although many more cases might have been encountered. The appearance was very typical and not easily missed if it were looked for.

3. Report of a Case of Malaria in an Infant, with Lantern Slide Demonstration, Frederick Beekel.

A historical review of the subject of malaria was first given, beginning with the description of the parasite in 1848 by Virchow, who did not, however, realize its significance: the discovery of its etiologic importance by Laveran and the further work of Ross and others in demonstrating the role of the mosquito in transmitting the infection was also mentioned.

The case reported occurred in a boy 10 weeks old, first seen on December 7, 1908. He had been breast-fed and always well until this, his first illness, began three weeks previously. He had had fever, rapid and difficult respiration, frequent vomiting and greenish stools. He took the breast poorly. Both parents were healthy, both had had malaria in Hungary, but they had shown no symptoms of it for many years. On examination the boy seemed well developed and weighed 4675 gm. Temperature was 38.6 C. He was very pale and anemic. Blood examination showed hemoglobin 30%, leukocytes 14,800, red cells 1,600,000. There was a marked poikilocytosis: numerous nucleated reds, both megaloblasts and normoblasts were seen and a great many quartan malarial parasites, intra- and extracellular and in all stages of development. Pigmented leukocytes were noted; the large mononuclears were increased and the lymphocytes decreased. The spleen and liver were each enlarged, extending three cm. below the costal margin.

Quinine bisulphate, gr. iss. t. i. d., was given, together with syr. ferri iodidi. After seven days the parasites disappeared, the anemia gradually improved and in two months the blood picture was normal and the child was perfectly well.

The probable source of infection in this case was very thoroughly discussed from the standpoints of (1) conveyance by mosquitoes, and (2) placental transmission. The first was possible since mosquitoes were still prevalent when the child was born, although there were no known cases of malaria in the vicinity and repeated examinations of the parents failed to show any evidences of existing malaria. The whole question of placental transmission was carefully considered and the literature thoroughly reviewed, showing that some 31 probable and 11 conclusive instances of this form of infection had been reported. A number of photomicrographs, showing the parasites, and several charts illustrating the details of the blood examinations, etc., were exhibited with a stereopticon.

4. The Opsonic Index in the Diagnosis of Pulmonary Tuberculosis. Preliminary Report, P. A. Jacobs. (To appear in full in the Journal.)

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Book Reviews

Daniel Drake and His Followers. Historical and Biographical Sketches, by Otto Juettner, A. M., M. D. Harvey Publishing Company, Cincinnati, Ohio. 1909.

We already possess several excellent biographies of Dr Daniel Drake. Written by his friends and intimate associates, these are, of course, sympathetic, and doubtless also truthful. We recognize, without hesitation Dr Drake's exceptional ability, his brilliancy, versatility, energy, perseverance and wide humanitarianism. Indeed, we cheerfully agree that he was one of the great men of his time. And yet, having admitted all this, we are at last perplexed to understand how a man of great mind and of a character endowed with all the Christian graces could permit himself to become for thirty years the stern, persistent and even vindictive enemy of an educational institution which he had himself founded, and of which the chief crime seems to have been that it had proved itself ungrateful to its founder. *Tantaene animis coelestibus irae?*

Doubtless the explanation of this phenomenon must be found, if at all, in the contemporary history of the medical politics of Cincinnati during what has been aptly called "The Thirty Years' War." And it is in supplying the general profession with the interesting history of this period that we find the most important *raison d'être* of Dr Juettner's book.

The first six chapters of the work are devoted to the consideration of Dr Drake as a child, as a medical student, as a physician and a public man, as a medical teacher and finally as an author. The biography is complete and accurate and illuminated by numerous sketches of Cincinnati, its men and its manners, during the first half of the nineteenth century. The Medical College of Ohio and the Iliad of woes by which this early institution was surrounded and almost overwhelmed during the early decades of its existence are described at length, and illustrated with portraits of the more prominent medical men of the period, whether friends or enemies of Drake and the college. Some of these portraits are extremely rare and interesting, and their attainment implies energy and perseverance worthy of mention.

Dr Juettner also gives us the history of the other medical colleges of Cincinnati (regular and irregular), the various hospitals of the city, the medical societies, with lists of their officers, and finally a chapter devoted to the medical authors who have made their home in Cincinnati.

The work is full of biographical sketches of the coryphei of the various medical schools, and is pleasantly illustrated with pictures of the various institutions at different periods of their development.

The text is well written, the style is clear and interesting, and the oversights of the proof-reader are not unusually conspicuous.

To the alumni of the Cincinnati schools and others interested in the development of the Queen City, to the medical profession at large, and to all persons concerned in the preservation of the memorials of our early history, the work of Dr Juettner can be heartily commended as a conscientious and praiseworthy effort, deserving cordial support.

Treatment of Disease in Children, by G. A. Sutherland, M. D., F. R. C. P.; Physician, Paddington Green Children's Hospital, and North Western Hospital. Late President for Section on Diseases of Children, British Medical Association. Pp. 311. London: Henry Frowde, Oxford University Press, Hodder & Stoughton, 1907.

This book has been written in an attempt to aid the young practitioner in his treatment of the diseases of children. The treatment prescribed is based on the author's own extensive experience. The text is well

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written, concise, and full of useful and practical suggestions for the care of a sick child. It can be strongly recommended.

During the past two years medical literature has been greatly enriched by the publications of the Oxford University Press. Among the more important of these may be mentioned Diseases of the Spinal Cord by R. T. Williamson, Heart Diseases by James Mackenzie, A System of Syphilis by various authors edited by D'Arcy Power, and a System of Diet and Dietetics edited by G. A. Sutherland. These books are of unusual merit, are printed on good paper, and are very attractively bound with flexible cover. Less than two years ago the Oxford University Press began the publication of the quarterly Journal of Medicine, under the editorship of Dr William Osler, whose name is a guarantee of the scientific character of its contents. It would seem almost fair to assume that the recent activity of the Oxford Press has been in some measure inspired by Dr Osler.

Pure Milk and the Public Health, by Archibald Robinson Ward, B. S. A., D. V. M., Assistant Prof. of Bacteriology and Director of the State Hygienic Laboratory, University of California, Berkeley, Cal., and Myer Edward Jaffa, M. S., Professor of Nutrition and Director of the State Food and Drug Laboratory, University of California. With two chapters and 17 illustrations. Taylor & Carpenter, Pub., Ithaca, N. Y.

Until very recently, the question of pure milk engaged the attention solely of the Pediatrist, as it was supposed that impure milk did harm only to infants and children. Since, however, it has been proved beyond question, that a number of communicable diseases, such as typhoid fever, scarlet fever, diphtheria, etc., may be transmitted, not only to children, but to adults, by infected milk, the milk supply of our large cities has received earnest scrutiny by sanitarians, bacteriologists and health officers.

It may, perhaps, be well within the truth to assert that no subject is at present receiving more careful study from the members of the medical profession than the one under discussion, especially when we remember that the numerous advocates of such transmissibility hold that the milk of tuberculous cows is alone responsible for the transmission of bovine tuberculosis to man.

At the recent meeting of the American Association of Medical Milk Commissions at Atlantic City, the widespread interest in pure milk was evidenced by the presence of prominent pediatrists, sanitarians and bacteriologists from various parts of the country, the Government at Washington sending six representatives. At this meeting it was announced that 58 milk commissions are now in existence in this country. This is significant, in view of the fact that a great deal of the credit for the great interest now taken in a pure milk supply is given to the originator of the movement, Dr H. L. Coit.

To those interested in the subject and every practitioner ought to be, this manual is heartily recommended.

It is up-to-date, shows a wide acquaintance of the authors with the literature of the subject and discusses the mooted subjects of tuberculosis and pasteurization in a judicious way. Especially to be noted is the emphasis laid upon the economic loss to the dairyman from the presence of tuberculous cattle in his herd.

A slight criticism might be made of the frequent use of the adjective tubercular in place of the correct word tuberculous, in referring to cattle afflicted with tuberculosis.

One statement is open to criticism, viz.: that fat alone, of the constituents of milk, resists the action of bacteria. Czerny, quoting Bokai, very convincingly shows that the acids resulting from the decomposition of the fat of milk by bacteria are the chief factors in the etiology of summer diarrhea in children and considers the peptonizing bacteria negligible in this connection.

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The Practical Medicine Series, Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of Gustavus P. Head, M. D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Volume Three, The Eye, Ear, Nose and Throat, edited by Casey A. Wood, C. M., M. D., D. C. L., Albert H. Andrews, M. D., Gustavus P. Head, M. D. The Year Book Publishers, 40 Dearborn St., Chicago, Ill. Series 1909.

Volume III contains the year's progress in diseases of the eye, ear, nose and throat. The literature on the eye is reviewed by Casey A. Wood, Professor of Ophthalmology in Northwestern University; that on the ear by Albert H. Andrews, Professor of Otology, Rhinology and Laryngology, Chicago Eye, Ear, Nose and Throat College; the nose and throat by Gustavus P. Head, the general editor of the series and Professor of Otology, Rhinology and Laryngology in the Chicago Post Graduate Medical School.

This book, like its predecessors, is well edited and contains a valuable review of the recent literature. It aims to review the literature of the *progress* made during the year—not to exhaust the literature of the four specialties. This aim it certainly well fulfills as a perusal of its pages will soon convince one. The book should prove of decided value not only to the specialist but also to the busy practitioner who has little time in which to acquaint himself with the ever increasing literature in the specialties.

To the practitioner in smaller communities, deprived of the advantages which a medical library affords, the value of the present book, as well as its companion volumes in the series, should be at once apparent. Not the least valuable part of the work is the bibliography to be found at the bottom of the pages and to which references are frequently made throughout the text.

Saunders' Pocket Medical Formulary. By William M. Powell, M. D., Author of "Essentials of Diseases of Children." Containing 1831 formulas from the best known authorities. With an appendix containing Posologic Tables, Formulas and Doses for Hypodermic Medication, Poisons and their Antidotes, Diameters of the Female Pelvis and Fetal Head, Obstetric Table, Diet-lists, Materials and Drugs used in Antiseptic Surgery, Treatment of Asphyxia from Drowning, Surgical Remembrancer, Tables of Incompatibles, Eruptive Fevers, etc., etc. Ninth Edition, Adapted to the 1905 Pharmacopeia. Philadelphia and London: W. B. Saunders Company, 1909. In flexible morocco, with side index, wallet and flap, $1.75 net.

The objection has been raised against such formularies that they tend to limit the exercise of the physician's own therapeutic knowledge and that, having made his diagnosis, he will simply accept a formula said to be useful in that disease. This is true to some extent but the same might be said about the N. F. or the prescriptions that are given in most textbooks dealing with treatment. If used judiciously the work will be valuable in suggesting combinations that may be modified to suit the individual views of the prescriber. Especially will the recent graduate find the book helpful. The prescriptions, as the text shows, have mainly been selected from well known authorities. The arrangement of the subject matter is according to diseases, which are in alphabetical order. useful for reference purposes.

Acknowledgments.

Hygienic Laboratory Bulletin No. 49. March, 1909. Digest of Comments on the Pharmacopoeia of the United States of America. Eighth Decennial Revision. For the period ending December 31, 1905. By Murray Galt Motter and Martin I. Wilbert.

Smithsonian Institution. Bureau of American Ethnology. Bulletin 34. Physiological and Medical Observations Among the Indians of

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Southwestern United States and Northern Mexico by Ales Hrdlicka. Washington, Government Printing Office, 1908.

Vaccine and Serum Therapy, including also a Study of Infections, Theories of Immunity, Opsonins and the Opsonic Index by Edwin Henry Schorer, B. S., M. D., Assistant Professor of Parasitology and Hygiene, University of Missouri. C. V. Mosby Pub. Co., St. Louis, Mo.

Daniel Drake and His Followers, Historical and Biographical Sketches by Otto Juettner, A. M., M. D. Harvey Pub. Co., Cincinnati, O.

Thornton's Pocket Medical Formulary, Lea & Febiger, Publishers.

Transactions of the Luzerne County Medical Society for the Year Ending December 31, 1908. Volume 16.

The Practical Medicine Series, Series 1909, Vol. III, Eye, Ear, Nose and Throat. The Year Book Publishers, Chicago, Ill.

A Study of the Urinary Acidity and Its Relations, by Henry R. Harrower, M. D., Chicago, Ill. Reprinted from the Medical Record, June 5, 1909.

Hand Book of Diseases of the Rectum, by Louis J. Hirschman, M. D., Detroit, Mich. C. V. Mosby Medical Book & Publishing Co., St. Louis, Mo.

Correspondence.

The following letter is being sent to all physicians in the city:

Cleveland, Ohio, June 26, 1909.

Dear Doctor:

In order to further lower the high infant mortality of Cleveland, the Babies' Dispensary and Hospital, together with the Milk Fund Association, Board of Health, and many other associations and institutions, will establish four branch dispensaries for *well babies*, which will be located at the following places: (1) at the West Side Cottage, corner Bridge Ave. and West 30th St.; (2) at the Central Friendly Inn, corner Broadway and Central Ave.; (3) at the Kinsman School, corner Kinsman Road and East 79th St.; (4) at the Alta House, Mayfield Road. These dispensaries will be open daily, except Sundays and holidays, from 10-10:30 A. M.

The central dispensary at 2500 East 35th St. will care for both well and ill infants. In case of illness the patient will be referred to the family physician unless the parents are too poor to pay for his services. In such an instance the ill baby will be sent to the central dispensary on East 35th St.

The object of these dispensaries will be mainly to promote intelligent breast feeding. As, however, there will be a certain number of infants requiring artificial food, it will also be very important to see to it that a fit milk be supplied at a cost within the means of practically every family. Through cooperation with the Milk Fund Association it has been possible to accomplish this. The milk will be sold at six cents per quart, and four cents per pint. In order to get this milk, however, it will be necessary that the child be brought to the dispensary at least once every two weeks or that the mother submit, at least once every four weeks, a note from a physician to the effect that he is directing the preparation of the food.

This will force every mother who is getting this milk, to have the preparation of the food for her infant directed by a physician, and not by a neighbor woman, and will enable you to send any of the patients living in the neighborhood of these stations or along the route of the two wagons to these dispensaries for a pint or quart of milk providing, however, that they cannot pay for Canfield Certified Milk.

The boundaries of the district covered by the two milk wagons are as follows: From St. Clair Ave. and East 55th St. down to Superior Viaduct to Detroit Ave. and West 38th St. to West 30th St. and Bridge Ave. to Lorain Ave. and West 25th St. across Abbey St. bridge to West

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14th St. and Starkweather Ave., down Starkweather Ave. to Professor Ave., Professor Ave. to Fairfield Ave. to Central Viaduct, to Broadway and Central Ave. to Kinsman Rd. and East 79th St. to East 79th St. and Woodland Ave., Woodland Ave. to East 55th St. and East 55th St. to St. Clair Ave.

Very respectfully yours,
STARR CADWALLADER,
Chairman of the Publicity Committee for Dispensary Extension of the Babies' Dispensary and Hospital of Cleveland.

Medical News

N. M. Jones has removed his office to 112 Lennox Bldg.

E. W. Hill has removed from 760 East 103rd St., to the corner of Euclid Ave. and East 105th St.

The graduating exercises of the Lakeside School for Nurses were held May 21, 1909. Twenty-nine nurses received their diplomas. Wharton Sinkler of Philadelphia, Pa., delivered the address to the graduating class.

A Convalescent Home has been opened at 5621 Scovill Ave. by Mrs. Vincent, formerly of the Visiting Nurses' Association.

The new building of the German Hospital, 3305 Franklin Ave., Cleveland, was formally dedicated on Sunday, May 30. Exercises in the Franklin Ave. Methodist Church preceded the ceremony and inspection of the building followed.

The Graduating Exercises of the Cleveland College of Physicians and Surgeons were held at Epworth Memorial Church on Thursday, May 20, 1909, at 2 P. M., Rev. Frank Luce delivering the address and M. J. Lichty the address for the faculty. The list of graduates is as follows: B. B. Buell, H. B. Corlett, F. V. Dunderman, Ada Ford, W. T. Gudgel, R. S. Hallock, W. A. Landgrebe, W. G. Mussun, F. A. Rice, F. E. Sexton, E. K. Zaworski, O. F. Zimmer, E. C. Davis, H. L. McNeeley.

The Sixty-Sixth Commencement of the W. R. U. Medical Department was held on Thursday, June 17, 1909. The graduating class consisted of 25 men: E. R. Alexander, A. B.; J. Anderson; A. F. Basinger, B. S.; H. A. Berkes, A. B.; R. B. Bretz, A. B., A. M; W. D. Bretz, A. B., A. M.; H. A. Budd, A. B.; C. H. Campbell, A. B.; W. D. Cleland, Ph. B.; H. N. Cole, Ph. B.; L. O. Davenport, A. B.; E. A. Duncan, Litt. B.; E. P. Edwards, B. B.; T. R. Kennerdell, A. B.; E. E. Kepner, A. B.; O. H. Love, A. B., A. M.; F. E. McElree, Ph. B.; R. V. Myers, A. B.; O. B. Norman, A. B.; J. D. Osmond, A. B.; H. L. Rockwood; V. C. Rowland, B. S.; H. K. Shawan, A. B.; H. A. Thomas, Ph. B.; A. C. Tidd. Four of these men: C. H. Campbell H. N. Cole, E. A. Duncan and V. C. Rowland have been elected members of the Medical Honor Fraternity, Alpha Omega Alpha, membership in which is based upon high scholarship.

The Alumni of the W. R. U. Medical College held their meeting on Wednesday, June 16. The address of the President of the Association, J. G. Spenzer of Cleveland, of the class of 1884, was upon the subject of "The Determination of the Presence and Nature of Blood as Having to do with Expert Evidence." The luncheon to the alumni was the largest for several years. Many of the men of the older classes were present. The oldest class represented was that of 1858. There are living, however, members of several classes earlier than this.

At the meeting of the Trustees of the Western Reserve University on June 15, George C. Ashmun, Professor of Hygiene and Preventive Medicine since 1893, resigned from this chair and was appointed Professor of Medical Jurisprudence and Medical Ethics. N. W. Ingalls was promoted to be Assistant Professor of Anatomy. Charles W. Stone was appointed Instructor in Nervous Diseases. Davidson Black of Toronto University was appointed Instructor in Histology and Embryology.

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Norman M. Geer, on May 29, 1909, in the Court of Common Pleas, was found guilty of "attempting to produce a criminal abortion." Judge Strimple sentenced him to four years in the penitentiary, but owing to a technicality in the form of the verdict his attorneys have been able to secure a new trial. As we go to press we learn that Geer has been found guilty after a new trial and has been sentenced to four years in the penitentiary. The credit for this conviction is due mainly to the energy of County Prosecutor Cline.

The Northern Ohio Dental Association held its fifty-second annual meeting at the Y. M. C. A. building June 1, 2 and 3. The meeting was most successful and some valuable papers were read. The following officers were elected for the ensuing year: President, W. A. Siddall; Vice President, W. Ebersole; Secretary, J. E. McBill; Treasurer, S. B. Dewey.

H. Woltman and J. J. Stevens of Mansfield have formed a partnership and will move into new offices about July 1.

The physicians of Mansfield have formed a protective league for mutual benefit and aid in making collections.

F. G. King, Cleveland College of Physicians and Surgeons, '08, has given up his practise in Alliance and will open an office in the fall in Canton.

W. C. Manchester of Alliance has moved his office to the Scranton Block on Main St.

The Alliance City Hospital, owing to the crowded condition of the wards, has secured an adjoining lot 120 x 120 feet, which will permit an extension of the present building. For the benefit of the hospital the Sorosis Club of Alliance held a "tag day" on Saturday, May 15, 1909. As a result of the effort of nearly one hundred young ladies some $550.00 was collected.

Battle & Company of St. Louis, Mo., have issued No. 9 of their Dislocation Charts. This will be sent free to physicians on request.

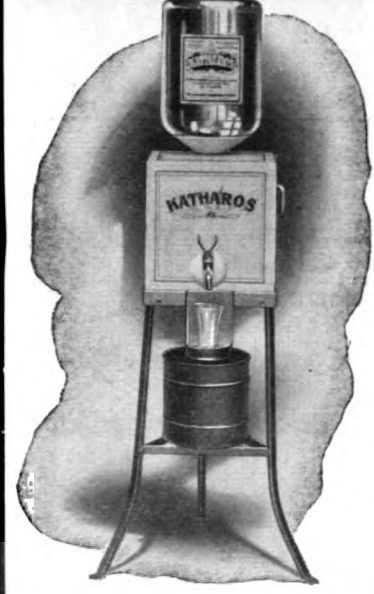
The Sixteenth International Medical Congress will be held at Budapest August 29 to September 4, 1909. A detailed pamphlet has been issued giving the personnel of the committees and the programs of the general and section meetings. Useful information is also provided as to securing quarters, traveling, excursions in the vicinity, etc. This pamphlet is on file at the Cleveland Medical Library.

The United States Civil Service Commission announces an examination on July 21, 1909, to secure eligibles from which to make certification to fill vacancies as they may occur in the position of physician at $150 per month, in the Panama Canal Service. Applicants must be men 20-45 years of age, citizens of the United States, graduates of recognized medical schools, and have had at least one year's experience as interne in a general hospital. The Commission also announces an examination on July 14, 1909, to secure eligibles from which to make certification to fill a vacancy of pathologist (male), $2,000 per annum, Freedmen's Hospital, Washington, D. C. Applicants for either of these examinations should at once apply to the United States Civil Service Commission, Washington, D. C., (or in Cleveland at the Custom House) for application form 1312.

Deaths

James B. Welsh, Eaton, Ohio, died May 29, aged 45.
Richard M. Durbin, Woodville, Ohio, died May 30, aged 52.
Moses L. Allen, Cleveland, Ohio, died June 3, aged 55.
Frank M. Macklin, Tarlton, Ohio, died May 31, aged 43.
Preston J. Edwards, Montville, Ohio, died May 16, aged 58.
Alexander H. McLeod, Cincinnati, Ohio, died May 11, aged 73.
Alta F. Cook, Sandusky, Ohio, died May 14, aged 58.

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See page 20.

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Contains—Hypophosphites of Iron,
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The Cleveland Medical Journal

VOL VIII AUGUST, 1909 No 8

Painless Dental Disease as a Cause of Neurasthenia and Insanity.

By HENRY S. UPSON, M.D., Professor of Neurology in the Western Reserve Medical School, Cleveland.

The great founder of Taoism said twenty-five centuries ago "The spiritual and the material, though we call them by different names, are one and the same."

Modern psychology has in many ways diverged widely from Oriental methods, but this saying of the great Chinese philosopher may still find fresh illustrations.

The object of the present paper is to put on record a few observations made during the past two years in a broad and important field, that relating to dental diseases in connection with nerve strain and with the psychoses, melancholia, mania, and dementia precox.

Although typical cases may occur in which a diagnosis of one member of this nervous and mental group is warranted, in many patients the symptoms blend in such a way that no sharp dividing line can be drawn. Most of the mental cases are nervous, most nervous cases have a mental substratum.

On the physical side there is an equal complexity of conditions. Diseases of the oral, abdominal or pelvic viscera are present as an exciting cause in conditions of insomnia, simple depression, purely emotional excitement, and in the more severe degrees of emotional disorder with or without delusions, so that what are considered normal emotions verge by imperceptible gradations into the severest cases of emotional and mental disorder. The physiologic and the pathologic are one. It is necessary to proceed from the simple to the complex, in sifting these

Read June 1, 1909, before the Northern Ohio Dental Association in Cleveland, and June 30, 1909, before the Pennsylvania State Dental Society in Pittsburg.

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cases, in order to determine whether some or all of them are in their mental symptoms dependent on underlying physical conditions.

One of the simplest dental lesions is impaction. When a tooth is formed in the jaw bone with its axis wrongly directed, it is often prevented by impact against another tooth from appearing outside the bone or through the gum. The result is pressure against the peridental membrane, in some instances accompanied by severe toothache or neuralgia. In most cases no such pain is present.

It has long been known that irregular teeth are common in the insane and among habitual criminals. It is a notable fact that never, so far as I have been able to discover, has a single experiment been put on record to establish or disprove a causal connection between impacted teeth and the nervous and mental diseases in which they are so common, with the exception of the cases reported by me in June of last year.[1]

Beginning with the known fact that an impacted tooth is not only a stigma, but a lesion, capable of causing agonizing pain, and the further fact that long-continued intense pain may cause delirium and insanity, in fact that most pains are associated with consequent mental phenomena, experiment and observation must determine whether these severe nervous, mental and moral symptoms are due to the pain, or may occur in the absence of pain.

Impaction is not considered by dentists a common lesion. It has never been looked for systematically by skiagraph in any class of the community, so that statistics on the subject are quite lacking. In undertaking this investigation two years and a half ago, four patients seen in private practise suffering from insomnia and melancholia recovered promptly after the relief of dental lesions. Skiagraphic examination was then made of patients in three of the State Hospitals, and a large proportion of cases of impaction found among patients suffering from the psychoses. These cases were most of them of long duration, many of the patients were more or less demented, and the results of interference by extraction have thus far not been favorable in patients in the Cleveland and Columbus State Hospitals. These patients will be made the subject of a later report. Ma-

[1] Insomnia and Nerve Strain, G. P. Putnam's Sons, 1908.

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terial in private practise is more hopeful, consisting in large part of recent cases with some mild cases of long duration.

Selecting patients whose illness has begun in the adolescent period, from 15 to 30 years of age, and a definite clear-cut lesion, true dental impaction, the terms of the problem are simple, for several reasons. In the first place because much nervousness and most functional insanities begin during this decade and a half. Then too these young patients are less likely than are older ones to have complicating diseases in the abdominal or pelvic viscera. Lastly, an impacted tooth is a lesion readily diagnosed if carefully sought, and its removal is harmless if skilfully done. Our first subject then will be dental impaction causing adolescent insanity.

Mental aberrations in youth have been classified by alienists in many complicated ways, and their study is a travail and confusion of spirit. So far as treatment is concerned it is not much more necessary to divide the youthful insane into clinical groups, than to classify typhoid cases according to their delirium, or to group drunkards according to the symptoms of their drunkenness. The division into melancholia, mania and dementia precox means simply that cases mainly characterized by mental depression are said to have melancholia; those with elation, mania; and those who present a variety of the other emotional and mental symptoms, stubbornness, talkativeness, mutism, states of trance, rigidities, and physical and moral anesthesia, all these are classed together as cases of dementia precox, a name which simply means that some of the patients become early demented.

The following case is one of insomnia with simple melancholia, a type which in varying degrees is one of the commonest among the nervous and mild mental illnesses treated by the neurologist and the general practitioner. These cases of melancholia are due to various causes. Many of them are set up by abdominal difficulties, of stomach, liver or kidneys. Even more of them are caused by pelvic disorders in women. The common attribute of all the exciting causes is that they are irritative in character. The case now to be described is one due to the pure irritation of an impacted tooth.

The patient, a manufacturer, 40 years of age, was always robust until four or five years ago. Then he began to be occasionally somewhat sleepless and depressed, especially when he was very tired. Two years ago depression became extreme and sleeplessness persistent and annoying. At times however his depression was replaced by undue elation and energy, and these were also attended by insomnia. All of these conditions have

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been improved at times by rest and made worse by work and worry. He has had no headache, no neuralgia and no toothache except from an occasional ulcerated tooth, relieved by incision and letting out of pus. He has had three molar teeth extracted in the last four years on account of abscess at the roots. On skiagraphic examination the left upper third molar tooth was found impacted against the roots of the second molar high in the jaw bone (Fig. 1). The right upper second molar was dead but showed no evidence of abscess. Both of these teeth were extracted October 16, 1908. The roots of the left second molar tooth were found partly absorbed by pressure of the third molar. The patient has made a progressive recovery since the operation. Sleep was better two nights afterward, and the general health improved markedly as the patient obtained more sleep. The depression has disappeared and the patient has made a practical return to health.

The preceding is an instance of moderate insomnia, and, with varying conditions of life, a remittent, simple melancholia. It may be compared with a case of severe delusional and suicidal melancholia reported by me in June of last year.

The patient was a teacher 27 years old. When first seen she had been profoundly melancholy for a year. She had had persistent insomnia, many delusions such as that her mind was entirely gone, that she had never been quite sane and that she had committed various dreadful sins. Treatment by tonics and suggestion, by change of scene, and treatment of the uterus proved of no avail. After a year of useless effort the teeth, which were apparently in perfectly normal condition, were examined by skiagraph. An impacted upper third molar tooth was found and removed under anesthesia in February, 1907 (Fig. II). The patient had never in her life had a toothache or any indication of disease in the teeth or jaws. She began to sleep well within a week or ten days after the extraction of the tooth. I unfortunately have no letters from her relatives in regard to her condition before the operation. The following letter, however, written about two weeks after the operation, when her condition had improved but little, will give an adequate idea of her sufferings for the preceding two years. Under date of February 19, 1907, her aunt writes: "My niece is very melancholy. If we try to rouse her from that she moans and groans and takes on over that hobby of hers. She says when she shuts her eyes she sees those horrible looking images. She calls them the evil one and they are after her. It seems sometimes her mind is trying to grasp something she cannot reach. She says her head is bound. She makes a great effort to break away from the evil one (as she calls it). As she is not able to she gets discouraged and settles down into a terrible melancholy. We take her riding and walking and try every way we can to get her mind from herself. We have to watch her all the time. She threatens so much to destroy herself. She says she don't want to die, but in these desperate spells she may do some dreadful thing. I rub her head on the top and bathe it. She sleeps three and four hours in a night. I have given the sleep capsules two times since I came from the hospital. The outward application seems to relieve somewhat." Under date of March 28, 1907, the aunt writes that her niece "seems quite well. If she could get over that terrible idea she would be all right. She sleeps well nights, but through the day she is haunted with that one idea. We try to keep her mind on other things, but for all we can do at times it will overcome her."

Her return to mental health was steady, and was typical in the fact that the delusions persisted longer than the melancholia. In such patients it is practically invariable that the emotional health is recovered first and that the delusions are got rid of later. In this patient, as the only physical disease was the impacted tooth, the other viscera throughout being healthy, there was an excellent basis of bodily health to build on. Her

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I. Case 1 Simple Melancholy



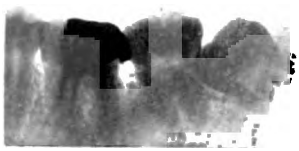
II. Case 2 Melancholia



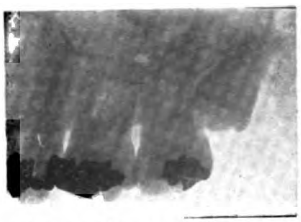
III. Case 3 Dementia Precox



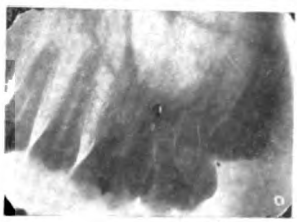
IV. Case 4 Dementia Precox



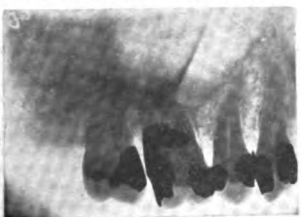
V. Case 4 Dementia Precox



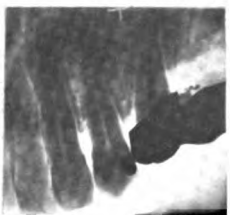
VI. Case 5 Neurasthenia



VII. Case 6 Neurasthenia



VIII. Case 7 Melancholia



IX. Case 7 Melancholia

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recovery has been correspondingly complete. Under date of May 8, 1909, she writes:

"I am very happy to be able to give you a good report of myself. You may be surprised to learn that I have been teaching school since last September. I am somewhat tired now, of course, but during that time I have missed only a few days on account of bronchitis. My school is one of the hardest in the city I am told. It consists of the fifth and sixth grades numbering about 40 pupils who are mainly backward and undesirable children. They require a vast amount of patience and untiring devotion. My friends at home are quite surprised at my enduring power, my brother having given me, when I undertook the work, two months in which to break down. Fresh air, exercise, careful eating, plenty of sleep, freedom from worry and a passionate love for my work are the only nerve tonics I am taking."

A case very different in type is the following:

The patient, a man 41 years old, was well as a boy and until he was 24. Then he began to have periods of sleeplessness at intervals of six months or a year. After a few nights without sleep he would become flighty and irresponsible. He had some periods of catalepsy, and at times ran away from the institutions in which he was being treated. During the intervals when he had a fair amount of sleep his mental condition was better, but he was far from normal, being irritable and of an unhappy disposition.

In this case an impacted upper third molar tooth was found only moderately angled against the second molar. It had appeared through the gum and had a large filling. The angle was apparent only by skiagraphic examination, the whole constituting what I venture to call a low angle impaction (Fig. III). The third molar was extracted in January, 1908. The patient at that time had had several months of insomnia, but began to sleep better and to feel quieter within two or three days after the operation. The gain was progressive for several months, and the patient has since been in a thoroughly normal condition. He not only sleeps well without sedatives of any kind, but has lost his undue irritability and other accompanying symptoms.

The above case is quite different from the preceding cases of melancholia, and is of the type known as dementia precox. It is, however, partially remittent in course in marked contrast with a case reported last June, of which the following is a brief account.

The patient was a girl 19 years of age, and when seen in October, 1907, had for eight months drifted gradually into a condition of mental aberration. The irritability of the preceding case was in this girl replaced by an active and persistent obstinacy. She was so restless that she had to be restrained night and day. She resisted all attempts at control, her delusions were expressed more and more actively until when seen her talk was most of it an incoherent muttering. She moaned continually as if in distress, but denied any pain whatever. She was obstinately sleepless night after night. The symptoms in this case were those of dementia precox of the most severe and continuous type, and loss of sleep, refusal to eat and constant activity day and night had brought her into a miserable condition of pallor and emaciation. In this patient it was impossible to make an examination of the teeth without an anesthetic. During two months of waiting for spontaneous improvement the patient remained in the same condition, and was then taken to the Lakeside Hospital and etherized. Skiagraphs were made and a cuspid tooth and all four third molar teeth were found impacted and removed (Figs. IV, V). Improvement began in this patient within two weeks after the operation,

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She began to sleep better and then began to gain steadily in weight and color. With this there were longer times of quiet and the patient began to talk a little more rationally. Two or three months after the operation, during a digestive disturbance, the patient went through a period of loud shrieking, which began early in the morning after waking, and these attacks were continued for five or six weeks. Improvement, however, was practically continuous, and mental health was established within six or eight months after the operation. The patient is fully rational at present but has occasional severe headaches. She enjoys a fair amount of sleep in spite of an occasional sleepless night. In her case, the left lower first molar tooth was not removed. It was dead, the roots were not filled to the ends and the filling was rough and overhanging. No recent skiagraphs have been taken so that it is not certain that there may not be other dental difficulties at this time.

The preceding cases are all instances of mental disturbance. Even severe dental irritation, however, does not always result in insanity, but sometimes causes nervous symptoms or disturbances of visceral action. The two following are such cases; as they occur in father and son they show one way of heredity in nervous and mental troubles.

The father, a man 51 years of age, when a child of 13 or 14 began to show nervousness by biting his nails. However, he continued in fair health until, at the age of 26 or 27, his digestion began to suffer. He had so-called nervous dyspepsia in a severe form, followed by prolapse and dilation of the stomach, and has had a good deal of digestive trouble ever since. Skiagraphic examination something over a year ago revealed a right upper third molar tooth impacted at a high angle (Fig. VI). Its removal was followed by the prompt disappearance of a very annoying feeling of distress and tension in the head which had been present for many years. This feeling was described not as a pain, but as a maddening indefinite pressure, which caused restlessness and strong impulsion to escape from an intolerable tension. Relief has been complete for something more than a year.

The nervous manifestations in the son's case go back a good deal further. He has had twitching of the face and extremities, so-called habit spasms, since he was about four years old. He has been otherwise fairly well, although not robust. Six months ago, at the age of 17, he had for some months been considerably worse, the twitching was more marked and digestion and circulation had begun to fail perceptibly. Restlessness was extreme, but no organic disease could be found anywhere in the body. Skiagraphic examination showed an impacted right upper third molar tooth almost identical in appearance with the one in the case of the patient's father (Fig. VII). In addition both lower third molar teeth were impacted at a high angle, and the left upper third molar tooth was retained high in the jaw, slightly if at all angled. The third molar teeth were removed December 28, 1908. Not enough time has elapsed for complete recovery, but the patient is at present convalescent. He is fairly well, working hard and much less nervous.

That painless disease other than impaction may cause disastrous results I can now illustrate by only one example.

This patient, a woman 37 years old, had, when seen in January, 1908, always been well until three or four years before that time. She then began to have a curious feeling in her throat when she swallowed, but without pain. This feeling has been sometimes better and sometimes worse; for several years she has been much depressed. She worries about her health and about other things, and has at times been sleepless.

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She has had no toothache and no headache, but had one attack of facial neuralgia, which stopped after treatment of the diseased roots of a tooth in the lower jaw.

This is a case of simple melancholy, but of a sufficiently obstinate kind, as it had lasted for three or four years. On examination the teeth themselves were in fair condition, but there were a good many ragged fillings and badly fitting bridges (Figs. VIII, IX). These were attended to by the dentist who made them, a skilful man, but at times careless. The patient promptly recovered from her melancholy and at last accounts was almost free from the hysteric feeling in her throat. This case furnishes an example not only of bad dentistry, but of the good results which occasionally follow treatment in all probability not quite thorough.

Prognosis: It is important to realize fully that some dental lesions and many of the resultant nervous symptoms are self-limited. Abscesses occasionally break and discharge, irritated pulps may die, and inflammations of the peridental membrane may or may not spontaneously cease. Possibly the majority of the nervous reactions in these cases may, even during the continuance of the exciting cause, be controlled by such measures as rest, diversion, tonics, nourishing food, and treatment of the digestive function.

I have had the opportunity of watching the steady improvement under treatment at the Cleveland State Hospital of a case not operated upon, of subacute mania dependent on the impaction of a third molar tooth. An equally significant case came under my observation over a year ago.

A robust man, 34 years of age, became suddenly melancholy four weeks before my examination. He was very dizzy, and had marked pain in the eyes and down the sides of the nose. Several of his teeth were badly decayed. Under tonic treatment by his family physician he recovered in three months without dental treatment and has remained well.

Such cases are instances of self-limited dental disease, or are analogous to the relief of headache from eye-strain by tonic measures, without glasses, and to the relief of toothache by laxatives or other general procedures without local treatment. These nervous reactions should be considered as occurring, most of them, not with the invariability of a reflex, but with considerable elasticity of action and reaction. The prognosis can be made only after full consideration of the psychic and somatic features of each special case, and after the careful study of the course of many such cases under different forms of treatment.

In cases in which marked dental lesions are found and no other serious disease is present the probability of cure can be estimated only by study of cases treated. The following is a tabulated statement of cases of neurasthenia and the psychoses seen in private practise during about two and a half years, in which

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skiagraphic examination was made. These results represent the first stumbling efforts in a new and unknown field and so do not adequately show what may be accomplished by skill and careful endeavor along the same line.

	Number	Operation	Recovery	Convalescent	Improved	Unimproved	No Data
Manic depressive type.....	11	9	5	..	2	..	2
Dementia precox.....	10	8	5	1	..	2	..
Psychosis	4	4	1	2	..	..	1
Insomnia	7	6	2	..	4	..	..
Neurasthenia	26	15	1	4	6	1	3
	58	42	14	7	12	3	6

The following is a separate statement of the cases of impaction included above.

Manic depressive type.....	5	3	2	..	1	..	..
Dementia precox.....	7	5	4	1	..	..	..
Psychosis	2	2	1	1	..	..	..
Insomnia	3	2	..	..	2	..	..
Neurasthenia	13	9	..	4	2	1	2
	30	21	7	6	5	1	2

In 22 out of 28 patients definite improvement began within a week or two after operation, that is early in the period of subsidence of irritation.

The ratio of recoveries to improvements in these cases of neurasthenia seems to indicate an almost hopeless prospect of cure in this disease. The outlook is probably not so gloomy as it seems. Strict criticism of such cases results in classifying as simply improved many patients who have returned to a life of tolerable health and usefulness; however to class such patients as quite recovered presupposes some blindness of faith on the part of the observer. It should also be borne in mind that most neurasthenics seen in consultation are cases of long standing, suffering from complex visceral disturbances. Recovery is more certain in the young than in the aged, on account of the greater frequency in the latter of serious obscure disease of other viscera. Complications in the abdomen may in the course of years make recovery comparatively slow and imperfect.

The danger of recurrence is in general greater in mild than in severe cases, and is in inverse proportion with the severity and rarity of the lesion. Thus, one who is nervous on the basis of an ordinary caries is more prone to recurrence of both lesion and resultant symptoms than one who suffers as the result of multiple impactions, which are not only rare and severe but cannot be reproduced.

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Prognosis in cases due to dental disease must to some extent involve the question whether the effects of dental lesions on nerve and brain are unique, or are duplicated by painless disease in other organs. The following cases may aid in its solution.

Years ago a young physician had made the round of all the specialists and been condemned by all, not to death, but to the life of a neurasthenic. He had the flushing, the fatigue, the misery. He said to the last consultant that all his orifices had been examined except the rectum and he would have that seen to. Search revealed an ulcer, the ulcer was excised, the patient at once recovered.

Some time since a woman of 50 developed neurasthenia. Specialist after specialist excluded all organic disease. Fatigue persisted, emaciation increased, but no pain pointed to disease of any organ. Postmortem examination revealed a cancer of the stomach.

A few years ago one of Philadelphia's greatest physicians began to suffer from fatigue. Eminent specialists diagnosed nervous prostration. He went to California for a year of rest, died suddenly and the cause of his nervousness stood revealed in an organic heart disease too obscure for diagnosis.

A woman 27 years old, during several pregnancies had become distinctly unbalanced mentally. At these times she was restless, sleepless and had various delusions. She showed a tendency to suicide and sometimes slipped away during the night, and on several occasions was brought back only after a long chase. At one such time in the early morning hours her husband dragged her from the waters of a lake. During the year before I saw her in consultation, symptoms had extended into the time when she was not pregnant. She had been violent to the children,. was becoming unmanageable, and in fact was rapidly developing the mental condition known as dementia precox. When seen she was once more pregnant, was growing more violent, and the question arose whether an operation would be of benefit, or whether it would be necessary to send her to an asylum. A radical operation was urged and carried out. The uterus and ovaries were removed. The patient made a rapid recovery, acquired a physical strength and vigor for many years unknown to her, and now after four years is carrying an unusually heavy burden of educational work and responsibility among the very poor.

These are not rare instances. They recur constantly in the practise of hundreds of physicians.

Once in a German restaurant Mark Twain ordered wine of a certain brand. The bottle came marked with another name. When the waiter's attention was called to the fact he said, "Ah, yes, it is a mistake," took the bottle to a corner of the room, changed its label and brought it back with a satisfied smile. That is the exact status of neurasthenia and the psychoses today. They are called functional disorders, and when the lesion is by chance discovered, when it becomes too obvious to be longer ignored, the label is quietly changed.

Experiment and observation of much wider range than are yet available are required for an accurate estimate of the probabilities as regards causation by dental lesions and the chances of cure. The following is an approximate estimate based on

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the data just given. Of all cases of neurasthenia and the psychoses, not due to obvious physical causes, such as digestive disorders and eye-strain, the great majority, possibly four-fifths in men and three-fifths in women, are due to dental diseases. The remainder are caused by many obscure visceral conditions. In women nervous and mental affections are often caused by pelvic disease, and this is the reason for the statistical difference as between men and women.

Whether serious dental lesions may occur quite without symptoms is an interesting question, and to aid in its solution I have made an investigation of the dental conditions of a number of the students of the Western Reserve Medical School. To determine the incidence of dental lesions in persons of normal nervous health it would have been necessary to exclude all those suffering from nervous symptoms. It has been thought better to examine students at random and to compare the history and the skiagraphic findings in each case. The results obtained so far show a moderate amount of dental disease in many of the students, and an amount of nervousness which fairly corresponds in extent and intensity with the dental irritation. The findings will be published later, with the hope that they may serve as a basis of comparison with cases seen in practise.

Treatment: In the management of nervousness in all its forms, as well as of melancholy and other mental aberration, rest and good food, attention to the digestion and bowels, and iron and other constructive measures are efficient and highly desirable. All these are measures designed to increase inhibition and heighten resistance. Psychotherapy when applicable has somewhat the same effect. Radical operative treatment of dental and other irritating lesions has advantages over other methods in comparative speed, ease, and permanence of result.

Of dental technic in relation to these diseases I cannot now speak. A word, however, on the dangers of conservative dentistry may be allowable, with a suggestion as to how some of them may be avoided. I have on three occasions after the killing of the nerve of a tooth watched in my patients the rapid development of an abscess at the root. In each case there were severe insomnia and melancholy, and periods of excitement in one of them. In no case was there toothache. There was at most an occasional slight twinge in the ear or in some tooth, not always the affected one. In all three instances the symptoms rapidly

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subsided after extraction of the abscessed tooth and without other treatment.

In several of my patients severe nervousness, insomnia and melancholy have begun soon after extensive bridge-work and capping. These symptoms have persisted several years without pain, and relief has followed only after removal of the irritation in teeth and jaws. Skilful work is in these cases not a positive guarantee against subsequent nervous disaster. There is no sure method of rendering a so-called dead tooth aseptic, and as yet we have no adequate knowledge of the dangers to the nervous system, of capping, crowning, root-work and the making of bridges. The results of these operations, mainly if not entirely due to the genius of American dentists, should be fully investigated by skiagraph in their relations with nervous conditions, and they can be safeguarded only by skiagraphic diagnosis both before and after operation.

The idea of the mass of the medical profession in regard to the mutual relations of lesion and of pain is probably fairly expressed in the following extract from the report of a medico-legal case: "Finally four doctors, after exhumation of the burned body, swore that many of its front teeth had long been missing, and that the remainder were in a state of decay that must have caused intense pain." The fact with regard to dental caries, especially in our asylums, prisons and hospitals, is that the decayed teeth and ulcerated gums remind one of Shakespeare's expression the 'rotten mouth of death,' and all this putrid mass exists in mouths as painless as is often a gangrenous leg or freshly shattered arm. No amount of decay in any part of a tooth whatever is necessarily the cause of pain. Not only is this so, but pain is the exception. In most cases caries runs its course and ends in the death of the pulp without pain of any kind. This fact may readily be verified by even casual observation.

What is found true of caries by ordinary observation may be verified by skiagraph in regard to alveolar abscess, impaction and exostosis. These lesions are usually painless, but are often accompanied by other profound nervous and mental reactions, as has appeared in the course of these remarks.

Procedure in every case should be as follows. Inquiry should be made in regard to the patient's preceding nervous and mental condition and a written record preserved with the dental history.

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After any operation involving a dead tooth, or the killing of a pulp, the patient should be watched for the development of changes in the nervous or mental state, and nervous disorders of any kind should be considered an indication for full ordinary and skiagraphic investigation of the teeth, even in the entire absence of pain and tenderness. Only in this way can serious consequences to nerve and brain be avoided.

515 New England Bldg.

Exudative Diathesis with Demonstration of Cases.

By H. J. GERSTENBERGER, M. D., Cleveland

It is my intention not to offer you this evening an original communication, in the strict sense of the word, but rather to call your attention to the symptom-complex, which in 1905 was first described by Czerny as exudative diathesis, (1) by giving you an abstract of the articles written by Czerny and others on this subject and at the same time reporting to you briefly some observations made at the Babies' Dispensary as to its frequency here in Cleveland, the relative predominance of various symptoms, the results of treatment, etc., and, (2) by demonstrating to you a few cases showing some of the most common symptoms of this condition which will, better than any description, make its clinical picture clear to you.

Exudative diathesis is, as its name implies, a constitutional predisposition to exudation and, according to Czerny, is a congenital anomaly. If one member of a family shows a symptom of this condition, it is also found to be, or to have been, present in some form or other in most of the remainder of the family. Fairly often the parents will give the history of having had the same disease in their childhood but frequently the family history is negative, because the grandparents have failed to inform their children of their state of health in childhood when the symptoms are most prominent. Then, too, the severity of the symptoms depends to a great degree on the mode of living. The parents, for instance, may have spent their early days in the country and consequently had so few and slight symptoms that

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they were entirely overlooked; while their children, born and brought up in the city with its unhealthy conditions, may show marked signs of this congenital anomaly. So the inability to obtain a positive statement from the parent to the effect that he or she was similarly ill in childhood, does not prove that the parent has not been subject to this diathesis.

A most remarkable history is the following one:

R. B. was seen at the Babies' Dispensary at the age of three months with a marked case of exudative diathesis. According to the statement of the mother "the child weighed 10 lbs. at birth and was very fat; at two months he weighed 14 lbs.; but from then on he began to pull down so quickly that we did not know what to make of it." He was breast-fed 10 to 12 times daily, and had greenish, slimy stools. Since birth he had had two colds. The brother of the patient, about one and one-half years old, had the same condition during the first year of his life, except in a more severe form. The mother and her sister showed the same symptoms when they were infants. They are the only children alive out of a family of 18. One of the 16 who died succumbed to croup "because he was too fat." The other 15 all died before reaching the age of one year. "Most of them had either summer-complaint or convulsions." All were bottle-fed. The father of the patient and his five brothers and seven sisters also had "the same skin sickness" when small. Six of the 13 of this family have died, two with croup (?), two with marasmus, one with blood poisoning arising from a burn and one from some unknown cause.

The symptoms of exudative diathesis are in most cases present before the child reaches the age of one year; in some cases even before it is a few weeks old.

Symptomatology: (1) Geographical tongue. This symptom is not present in every case of exudative diathesis,—in 185 cases at the Babies' Dispensary I have seen it but 12 times—but when it is, one can invariably find other symptoms also. The geographical tongue has the peculiarity of rapidly changing its appearance. Today one or two small, round areas of swelling and desquamation may be seen. Tomorrow they may be replaced by a single, large, irregularly shaped lesion along one side of the tongue and in a few days the tongue may be perfectly free and remain so for weeks and months, only to again have the condition suddenly appear as it did before.

(2). Seborrheic eczema of the scalp or "Gneis" of the Germans. This consists of very adherent, yellowish-brown, grey, or, when the head has not been freed from dirt, black scales mainly over and around the large fontanel. Upon removal of these scales the underlying skin is found to be hyperemic. In a few days these areas will again be covered with scales, or, if the scalp was not cleaned carefully, a moist condition will have been established. This will be replaced either by incrustation or, if

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an infection has taken place, by a more or less general eczema of the head; very often impetiginous in character. In most cases the child infects itself in this manner by scratching. That the scales found at the large fontanel are not due to lack of cleanliness, is proved by the frequent and rather desperate voluntary information of the mothers to the effect that although they have daily washed the scalp it has been impossible for them to keep the head "clean."

(3). Seborrheic eczema of the face or the so-called "Milchschorf" of the Germans. At first nothing more than a rather definitely circumscribed redness can be seen at the most prominent part of the cheek and near the ear. Later the skin becomes dry and scaly, and still later, if the child scratches, an eczema of more or less severity will be seen, spreading down along the lower border of the chin and up along the eyebrows and forehead leaving a white, free area about eyes, nose and mouth, much like that seen in scarlet fever. Whether or not a child scratches depends upon the presence or absence of the complicating itching which Czerny considers a symptom of a hyperexcitable nervous system. If there is no itching present, the child will not scratch and the "Milchschorf" as such will not affect its general health; but if it is, the child will try to get relief by rubbing the itching area with its hands or against a pillow or some other available object and by so doing will irritate the skin markedly and bring about an eczema of more or less severity. Sometimes these lesions form the starting point of septicemias which, of course, may terminate fatally.

(4). Lichen strophulus or, as Czerny terms it, prurigo. The appearance of this symptom is not, as are both "Gneis" and "Milchschorf," limited to the first year of life. It can unexpectedly show itself at intervals of various length for six to eight years. Prurigo appears suddenly, apparently without any cause, and mainly in the region of the loins, but also on the remainder of the body, on the extremities, principally upon the upper, and rarely on the face, in the form of wheals usually arranged in groups and surrounded by a red areola and resembles very much indeed the bite of an insect. In 24 to 48 hours the redness and swelling have abated and the lesions remain for one to two weeks or more as small, hard, shotty, brownish infiltrations, which gradually disappear without breaking down or forming a scar. In children with an abnormal state of the nervous system this symp-

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tom is accompanied by itching and scratching; but otherwise not. Between these attacks the skin seems to be perfectly normal to inspection and palpation. That the skin in exudative diathesis, however, does in reality differ for some unknown reason from the normal can be seen in the readiness with which an intertrigo or moist eczema appears in the folds of the skin, even though, in many cases, the children are kept in a state of cleanliness above the ordinary. This condition appears not only on the buttocks but just as frequently back of the ears, in the folds of skin at the neck, in the axilla, on the elbows, etc., and represents a further, (5), symptom of exudative diathesis, which rarely persists after the first year.

A second group of symptoms which completes the clinical picture of exudative diathesis represents the reactions of the mucous membranes, especially that of the respiratory tract, to its influence. Czerny, for the sake of clearness, compares the clinical picture of exudative diathesis with that of measels. "On the skin the exanthem; on the mucous membrane the enanthem." These children show frequent attacks of rhinitis, nasopharyngitis, pharyngitis, laryngitis and bronchitis, which, according to Czerny, bear the same relation to the mucous membrane of the respiratory tract as do the seborrheic eczema of the scalp and face, the prurigo and the intertrigo to the skin. The counterpart of the secondary eczemas and infections of the skin he finds in the infectious bronchitis and pneumonia of the respiratory tract. If the nervous system of a child with bronchitis is especially hyperexcitable, the more mild picture of the average bronchitis will be replaced by the severe and alarming one of asthma. The so-called asthma in children, then, is nothing more than an acute, diffuse bronchitis in a child with exudative diathesis whose nervous system is hyperexcitable. The "asthma character" bears the same relation to the bronchitis as does the itching to the prurigo or the "Milchschorf." This is the same factor which causes one child to react to a slight bronchitis with a marked cough while another hardly notices it. Czerny has also recognized that the symptoms are not the same in all children, in other words that a predilection for the various symptoms exists in various childen. So some will have repeated attacks of tonsillitis, others of bronchitis, and still others of adenoiditis. One of our patients at the dispensary has had six attacks of bronchopneumonia, and two of lobar pneumonia within two years. Her sister, who

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showed but slight signs on the skin when she was about four months old, has had pneumonia twice during this last winter. That practically all cases of pneumonia in infancy occur in children with this congenital anomaly is strongly suggested by the following observations made at the Babies' Dispensary: Out of the 22 cases of bronchopneumonia in children under two years of age, who have been seen at the dispensary since October 1, 1908, 15 or over 68% showed symptoms of exudative diathesis. Some of the remaining seven, although they showed no symptoms of this condition while under our observation, undoubtedly belong to the same group as the 15; so that the percent in reality would be above 70.

It is important to call your attention to some symptoms secondary to the above-described lesions of the skin and mucous membranes, because they at times, especially in later years, dominate the clinical picture, namely to the enlarged lymph glands and the hypertrophied tonsils of the nasopharynx and the throat.

According to Czerny all glandular hyperplasias in these cases are due to infectious processes in the districts which they drain and are not to be considered as a part of the so-called status lymphaticus, because he can, as he claims, always find the presence or the remains of an infection in the territory drained by the enlarged lymph glands. Corroborative evidence for this he finds in the fact that these children very frequently have slight rises in temperature which, ordinarily, are not noticed. In the 185 cases of exudative diathesis observed at the Babies' Dispensary enlarged posterior cervical glands, which drain the scalp and the nasopharynx, were found 167 times; enlarged submaxillary glands, which drain the anterior portions of the mouth and face, 24 times; enlarged axillary glands 144 and enlarged epitrochlears 42 times. No attention was paid to the anterior cervical glands because they are, except the uppermost one, completely covered by the sternocleidomastoid muscle and therefore difficult to feel. The inguinal glands were also neglected because they were supposed to be enlarged in practically all cases anyway. These figures show, then, that those groups of glands were most frequently enlarged which drained those districts which were most often the seat of the lesions, namely the scalp, the proximal part of the face and the nasopharynx, and would seem to substantiate Czerny's assertions.

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Czerny explains the hypertrophy of the tonsils as a secondary, reactive hyperplasia.—(1) to infectious processes; (2) to simple "Reizzustaende," i. e., to irritating conditions of the mucous membrane around and over the tonsils, similar in character to the simple, uncomplicated seborrheic eczema of the face, and (3) to the cause of the status lymphaticus, which he believes to be overfeeding in some form or other. So the hypertrophy of these structures is always secondary in nature and therefore the therapy, as still widely practised today, of removing the tonsils or adenoids and leaving well enough alone is logically wrong, especially so when an extra heavy diet is prescribed for the supposedly anemic child. The symptoms usually referred to the tonsil are in reality not due to it, but, on the contrary, the enlarged mass has been caused by the former based upon a constitutional anomaly. The logical treatment is then a simple procedure.

Vulvitis and balanitis and also blepharitis are mentioned by Czerny as occasional symptoms of exudative diathesis. During 1908 Langstein described a mucopurulent enteritis which he believed to be due to the same cause. The leukocytes in these fecal discharges were mainly of the type of eosinophiles. Helmholz very recently reports differential blood-counts made on children with exudative diathesis which showed a high percent of eosinophiles ranging from 13 to 38%. In another article Langstein gives an account of a case of exudative diathesis, which had been relieved of a marked eczema at the Charité. A few months later he was hurriedly called to the same child and found it in a very severe attack of asthma. It was immediately brought to the clinic where, within 24 hours, it regained its normal state. Later it was discharged normal and sent home. Soon, however, the old attacks began to appear again in their severe form. After a 24 hour stay at the hospital the child was again free from asthma. The blood picture of this child also showed an eosinophilia. These findings simply confirm Czerny's contention that there is a direct relation between exudative diathesis and asthma, and that the state of the nervous system is of great importance in the production of the severer types. The good result obtained in Langstein's case is attributed to the beneficial influence of the change of its surroundings on the debilitated nervous system of the child.

At the Babies' Dispensary we have seen to date 185 cases of exudative diathesis. Of these, 78 were seen within the last

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six months, representing 14.1% of the 551 patients admitted during the same space of time. This shows that the condition is quite common among the babies of the dispensary class of Cleveland.

The following statistics will show the relative frequency of the various symptoms and complications observed by us in the 185 cases:

Seborrheic eczema of the scalp ("Gneis")	118	times
Seborrheic eczema of the face ("Milchschorf")	92	"
Intertrigo	81	"
Prurigo	41	"
General eczema	13	"
Marked eczema of the face and head	13	"
Postauricular eczema, marked	36	"
Adenoids	38	"
Rhinitis	40	"
Bronchitis	49	"
Asthma	6	"
Rachitis	41	"
Spasmophilic diathesis	5	"
Enlarged spleen	55	"
Geographical tongue	12	"
Palpable posterior cervical lymph glands	167	"
Palpable submaxillary lymph glands	24	"
Palpable axillary lymph glands	144	"
Palpable epitrochlear lymph glands	42	"

The etiology of exudative diathesis is, according to Czerny, a disturbed economy in the assimilation of the food fat. This shows itself in one of two ways, in most cases soon after birth, even before the above described symptoms have appeared. The one class of these cases does not gain properly or, in some of the more severe cases, not at all for days and weeks—even though breast-milk is present in sufficient quantity. Czerny has found that if these cases are left alone, providing that they are, of course, receiving a large enough quantity of food, that they will sooner or later gain and in the end be in a better state of nutrition than they would have been had they been artificially fed. These children are the ones, according to Czerny, who are the cause for the wide-spread belief that the milk of the mother is not fit for the child. One chemical test of the milk does not give the slightest inkling as to the real chemical composition of

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the milk. Not the mother's milk, but the child is at fault. As soon as these children get the customary modifications of cow's milk they very soon show a marked constipation which is a sign of disturbed assimilation of the fats and not a symptom of difficult proteid digestion. If these children are continued on the same food distinct symptoms of exudative diathesis will not be found wanting. If, on the other hand, a food low in fats and high in carbohydrates, such as Keller's malt soup, is given the child soon gains in weight, is not constipated, improves in general condition and is free from, or but slightly affected with, symptoms of exudative diathesis.

The other class of these cases of exudative diathesis are in the eyes of the laity perfectly well children. They gain very rapidly in weight at a pace far above the average, even on a quantity of breast-milk that is below the need of the average child. These children show their relation to exudative diathesis as soon as an attempt is made to feed them with cow's milk. The same symptoms appear as in the first class, but in a more severe form. This second class succumbs much more readily to intercurrent infections, convulsions and tetany than does the first. This is due to the low state of immunity in these babies. The pneumonias also reap their harvests from them.

In the treatment Czerny considers: (1) The manner of feeding; (2) The condition of the nervous system and (3) The intercurrent infections.

Feeding resolves itself mainly in the prevention of overfeeding with any food. In a breast-fed child this can be accomplished by limiting the number of nursings to that required by a normal child, namely to five in 24 hours; in extreme cases this could be reduced to four or in place of a nursing a meal of farina soup which has a much smaller caloric value than an equal amount of breast-milk, could be given. In a bottle-fed infant, of course, the quality and quantity of the food can be absolutely controlled. The total quantity of cow's milk used for a child with exudative diathesis should not be above one pint. As soon as symptoms of a faulty fat assimilation show themselves, recourse is to be taken to a food with less fats, and in severer cases to one with higher carbohydrates. At the age of 15 to 18 months these children ought to be placed on the diet of two year old children, afflicted with this diathesis. This consists mainly of vegetables, well mashed, a half to one pint of milk, a tablespoon

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or two of finely cut meat, dried white bread, and fresh fruits. Contraindications are eggs, cream, butter and sweets; therefore also preserved fruits or jams.

The Condition of the Nervous System can best be kept within normal bounds by limiting, as much as possible, the contact with adults and by providing for frequent meetings with children of the same age. This is about the best means of giving the nervous system of a child the kind of stimulus it needs for its normal development. In a markedly nervous child a complete change of surroundings gives the best results.

The Intercurrent Infections can best be prevented by having the children live in an atmosphere relatively free from dust and soot. In some cases the change of residence from the center of a large manufacturing city to its periphery will do much good; still better would be the transfer to the country and, in severe cases, to a mild climate throughout the entire year. Especially careful isolation of these cases from anyone ill with an infectious disease need hardly be mentioned.

The special symptoms of exudative diathesis must be met with proper treatment as soon as they arise. In the persisting moist eczemas of the folds of the skin a 3% solution of silver nitrate applied once every day or second day and followed in the intervals with an astringent powder, such as one composed of one part of bismuth subnitrate, two parts of zinc oxid and three parts of talcum, has been found very efficacious. In the crusty eczemas of the face and scalp the following local treatment has, in our experience, been of decided value in most of the cases. After removal of the crusts, which have been softened, by the application of some oil, a tar-zinc paste of the following composition is applied once daily in the severe cases and once every second or third day in the milder ones:

R/ Ol. cadini.....5 to 10 gm.
Zinci oxydati,
Talci, aa ad..... 50 "
Vaselini flavi,
Lanolini, aa ad.....100 "

At the second dressing the lint mask is removed and the dried salve sponged off with cotton and benzine—fire out!—; then the scalp is sponged with alcohol and a few moments later with a 1: 2,000 solution of bichlorid of mercury; finally the tar-zinc paste is applied and a fresh mask of lint put on. To pre-

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vent the child from scratching its face and head pasteboard rolls, such as are used for the mailing of pictures, of the proper width and length can be placed over the arms in such a manner that they reach from the middle of the upper to the middle of the lower arm. They can be kept in place by tying two tapes, which have been fastened to the upper ends of the rolls, over the neck of the child.

Some of these marked cases of head and face eczema, however, do not react to this treatment as readily as is desired and if they improve they return quite quickly to the old status again. For these a new treatment has been introduced by Finkelstein which consists in giving a food of low salt content. It is prepared in the following manner:

The whey and curd of a quart of milk are separated in the customary way; $^4/_5$ of the former is poured away and an equal quantity of oatmeal-water added to the remaining $^1/_5$ of the whey, bringing the total up to the original $^5/_5$; the curd is thoroughly, but carefully, washed with boiled water in order to remove all of the whey that might still be mixed with it and then passed through a strainer to make it of uniform consistency; the washed and strained curd, the whey-oatmeal-water mixture and 20 to 40 grams of cane sugar are then put into one dish and thoroughly mixed; the food is now poured into the feeding bottles and placed on ice until needed by the patient.

Finkelstein reports good results with this treatment. In three to four weeks the eczema has disappeared without the use of any local treatment; he recommends, however, the application of a one percent tar-zinc paste as it hastens the disappearance of the skin lesion. While on this diet these children loose markedly in weight; Finkelstein does not consider this a contraindication. Mendelsson and Langstein also report favorably on this method of treating these eczemas. The latter, however, met with one case that went into severe collapse while on Finkelstein's diet and was saved only by the prompt administration of salts to the body in the form of a one percent salt solution given subcutaneously. Czerny expresses himself very skeptically as to the value of the salt-low diet and Feer and Spiethhof report good and bad results. Finkelstein explains these varied results in the following manner: L. F. Meyer, his assistant, found that when he put a normal child on a diet consisting of $^1/_5$ of a liter of milk he could demonstrate a pouring out of salts in the urine

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which, however, in a few days regulated itself and retained a certain definite height. When to this food, which, of course, did not nearly cover the needs of the child and consequently could not prevent the infant from losing enormously in weight, he added fat in liberal quantities, he could show a decided retention of salts. This shows that a definite relation exists between fats and salts, possibly so that in the laying on of fats the salts are bound; in other words, that the fats have a certain avidity for salts. In the children with eczema, according to Finkelstein, this avidity does not exist in a normal degree, so that when the patient is getting the customary food for his age and size there is more salt present in the body unbound than is normally the case and this excess in salt is the exciting cause of the skin eruption. So when these children with eczema receive a diet low in salts, such as the one prepared according to Finkelstein's directions, the appearance of excessive salt in the body and the irritation caused by it is prevented and in this manner the child is cured. To get this result it is essential, however, that the body of the child be able to lay on the salt-binding fat. If it is not, then, of course, the outlined treatment will be of no avail; and this is the way in which Finkelstein explains the bad results which occur in skinny and ill children.

We have tried this treatment in only one case at the dispensary. The result was unsatisfactory, but as the child was seen for a very short time only, no value can be attached to this one case.

A decision as to the real value of Finkelstein's diet can not be made at this time.

In closing I wish to impress you with this fact, namely, that at present many of the symptoms of exudative diathesis are still being treated as separate morbid entities, whereas, to get the best results they ought to be considered first in their relation to the fundamental anomaly.

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Fracture of the Anterior Superior Spine of the Ilium by Muscular Contraction, with Review of the Literature

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Among ancient writers Hippocrates has often been referred to as the first to make any allusion to separation of the epiphyses, but in so doing he has used the term in a very indefinite manner. Morgagni, Colombus, Poupart and Ambrose Paré of the sixteenth and seventeenth centuries, also mention occurrences. Sir Astley Cooper in England was one of the first to point out clearly that epiphysial separations are usually mistaken for dislocations rather than fractures.

We find even as late as 1884 Hamilton, stating: "*Epiphysial separations* we shall not hesitate to class with fractures and to submit them to the same rules of nomenclature. These accidents rarely occur after the twentieth year of life; since after this period, and in the cases of some bones at a much earlier period, the epiphyses are usually united to the diaphyses by bone." He gave, however, a distinct heading to many of these injuries and in a few cases considered their diagnosis from fractures.

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In the literature on the subject of separation of the epiphyses little is said of the epiphyses of the bones that make up the pelvis, much, however, is written concerning those of the long bones. In the ossification of the cartilaginous ends of the bones the cells are collected into columns, usually in a direction parallel to the long axis of the bones, separated by a cartilaginous matrix which becomes granular, calcifies and forms areolae and meshes between the altered cartilage cells. In this calcified matrix the osteoblastic material is very soon deposited, and blood-vessels then form.

Blood Supply: The epiphyses obtain their blood supply from the periosteal network of arteries, large branches of which perforate the thin external layer of compact bone and are distributed throughout the spongy cancellous tissue. Nearly the whole of the blood supply is, therefore, independent of the diaphysis. Only one or two minute arteries pass into the epiphyses from the diaphyses through the conjugal cartilage. This accounts for the comparatively infrequent occurrence of necrosis of the epiphyses in traumatic separation of the epiphysis even when the diaphysis is more or less completely displaced from the epiphysis.

Function: Epiphyses are either for the formation of the joints, for the attachments of ligaments, or for the development in length of the bone; but more frequently they fulfil all these functions at the same time. They have a sort of independent existence from the rest of the bone, being supplementary processes designed to protect the functions of the part while the diaphysial ossification is extending.

Periosteum: Many experimentalists have found that if the periosteum be removed the epiphysis may be very readily detached from the diaphysis. Epiphysial separations are of less frequent occurrence than they might be, not so much on account of the firmness with which the epiphysis adheres to the shaft, as in consequence of the great support given at the epiphysial lines of junction by the periosteum.

The periosteum is also the principal factor in the production of callus for the union of fragments after epiphysial separation, because being so very adherent it is almost never entirely torn off.

Ossification: Beclard fixes the commencement of osseous development of the iliac crest at the sixteenth year and says that some osseous granules, which show themselves in the cartilaginous

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margin of the iliac crest, congregating especially at two points—in the front and back parts to form the anterior and posterior spinous processes—are often seen at the fifteenth year. At the nineteenth and twentieth year two thick and broad epiphyses are seen, the anterior one forming the anterior superior iliac spine and the anterior three-quarters of the iliac crest, the posterior one, the posterior superior iliac spine and contiguous part of the crest. The point of interruption between the two is at the posterior flexion of the letter S, which represents the outline of the iliac crest.

More often these two parts are united into one long epiphysis capping the iliac crest.

This epiphysis does not join the body of the ilium till the twentieth to twenty-fifth year, usually at the twenty-first year.

Poland says that a separation of the true osseous epiphysis can occur only from the fifteenth year, the time of its formation, to the twenty-fifth year, when it unites with the body of the bone.

Dwight in "The Range and Significance of Variation in the Human Skeleton" has concluded from some observations upon the skeleton that the epiphyses of the crests of the ilia are among the last to unite. They probably join at about the age of 21 but the lines of the crest of the ilia may be seen in parts for some years.

Muscles: The anterior superior spine has attached to it numerous muscles: the sartorius, tensor vaginae femoris, external oblique, internal oblique and transversalis and iliacus on the inner aspect, besides the fascia lata and Poupart's ligament.

The anterior superior iliac spine being developed as part of the iliac crest, a much greater amount of muscular violence will be necessary to effect its separation than in the case of the anterior inferior iliac spine, which develops from an isolated center, while direct violence, such as in a fall against some hard surface, or by a severe blow, or by the patient being run over by the wheel of a vehicle, may not be an uncommon mode of separation.

Fracture from musclar contraction is rare. However, after diligent search through international literature, I have found nine cases reported.

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Author	Journal	Sex and Age	How caused
Nickerson, N.	Boston M. & S. J., 1890, CXXII—224 Deut. Med. Wochn., Leipsig, 3/6/90.	Male 17	Running a footrace.
Hyde, W. E.	Brit. Med. Jour., II, 513, 1872.	Male 18	While running over uneven ground.
Sealey, Geo.	Brit. Med. Jour., II, 459, 1872	Male 17	Running in football game.
Jay & McWhinnie	N. Y. Med. Jour., XII, 184—Canada Med. Jour. VII, 97.	Male 17	Running a footrace to a certain point, turned to run back.
Hamilton	Treatise on Fractures	Male 70	Arising from sitting posture.
Albertin	Province Medical, Lyon, 1887, II, 741.	Male 17	While running, stumbled forward, twisting body to right himself and fell upon left hand.
Reverdin	Rev. Med. de la Suisse, Geneva, 1899, XIX, 757.	Male 17	Slipped on incline while walking, twisting body to gain equilibrium.
Brown, C. Haig	Brit. Med. Jour., 9/16/1884, 320.	Male 17	Jumping.
Corlette	Austrln. Med. Gaz., Sydney. March 15, 1895, p. 99.	Male 17	Getting down from omnibus slipped, lost footing and came down with whole weight on right foot.

Each of these, you see, occurred in young men 17 or 18 years of age except one in a man of 70. As the histories show the sex, age and treatment to be so very similar I shall go into details only in my own case which, in almost all its features, is a duplicate of these previously reported ones.

W. S., aged 17, on June 20, 1908, while running a footrace, completed the course a winner and then came to a rather sudden stop: in doing so he felt something give way in his right side, followed by a sharp pain. Attempting to walk further he found he was unable to move his right leg and was assisted to a near-by bench. This accident occurred at a picnic in the country. It was necessary to bring the boy into the city by train, on a cot in a baggage car.

I was called by his parents and met him at the station. He was immediately taken in an ambulance to Lakeside Hospital. On examination I found the following—a young man well nourished, about six feet in height, fairly muscular. He could not stand and as he lay the right foot turned somewhat inward. He was able to turn his foot from side to side, but totally unable to lift his heel from the table. When I attempted to elevate the limb he complained of pain in his right side, placing his hand over the anterior spine of the pelvis. On examination for fracture of the head of the femur or a possible dislocation, nothing could be ascertained except a slight swelling, tenderness and crepitation over the anterior superior spine with no discoloration of the skin over the seat of tenderness. When I raised the limb or flexed the knee, positive and

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distinct crepitus could be elicited. I could also feel, as well as grasp with my fingers, a bony fragment, sliding the same up and down. This fragment was freely movable when the limb was flexed and rotated inward, but the mobility was greatly lessened with the limb extended and rotated outward.

A fracture of the ilium was diagnosed and a requisition for a radiograph was made. This being about 10 P. M. the patient was put to bed.

The following morning Dr W. C. Hill made a radiograph which showed a fracture of the anterior superior spine of the ilium, a fragment 3½ cm. long, the shape and size of an almond, being displaced downwards and inwards.

Treatment: The limb was bandaged from the ankle to the groin in order to immobilize all muscles. The displaced fragment of bone was replaced as nearly as possible in its normal position by manipulation of the limb and held in place by a gauze pad and cross strapping with adhesive plaster, over which was placed sheet-wadding and a spica bandage. The limb was then flexed at the knee and thigh and secured on a double inclined posterior splint by means of straps and further bandaging. There was no pain after fixation.

Four days afterward he complained of pain in the popliteal space, but this was easily and quickly remedied by adjusting the foot-piece, thereby relieved the pressure of the splint at the knee-joint.

On the twelfth day all bandages, pads, etc., were removed. There was no pain or swelling in the limb; on palpation, no pain, tenderness or crepitus over the fragment. Callous formation and firm bony union were present. The pad was reapplied and a spica bandage to the right limb.

In sixteen days the pad and adhesive straps were removed and the limb gradually extended from a flexed position to a horizontal one, passive massage being given daily.

On the eighteenth day the splint was removed and the patient allowed to go about on crutches.

On the twenty-first day a second radiograph was made showing complete bony union, with the fragment displaced downward ½ cm. Patient left the hospital on crutches for his home. In a few days he discarded the crutches and used a cane. From this time on he made a rapid recovery and attained a normal gait.

CONCLUSIONS.

1. Such an accident is rare and of an unusual nature.

2. Nine of the 10 cases occurred in males of 17 and 18 years of age, before complete ossification of the iliac crest takes place.

3. In two cases, Nos. 5 and 8, the tension was from the abdominal muscles—the external and internal oblique and the transversalis—calling into sudden and violent contraction their muscular fibers with displacement of the fragment upwards.

4. In the others, the majority of the cases, the muscles responsible for the fracture were the sartorius and tensor vaginae femoris, thereby displacing and pulling the fragment downward, as in my case.

5. In all cases excepting No. 5 (Hamilton's) the diagnosis might be said to be a separation of the epiphysis rather than a fracture of the anterior superior spine of the ilium, but in each

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case the whole epiphysis was not separated (i. e. the iliac crest in its entirety) but only a small portion of it which has no separate center of ossification from the rest of the iliac crest, and therefore, "fracture" seems to be after all the more correct term.

6. Considering the strength and number of muscles attached to the ilium and the frequency with which they are brought into sudden and violent contraction by movements of the trunk and limbs, one with and against the other, the wonder is such an accident is not more common.

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The Tuberculo-Opsonic Index.

By P. A. JACOBS, M. D., Cleveland.

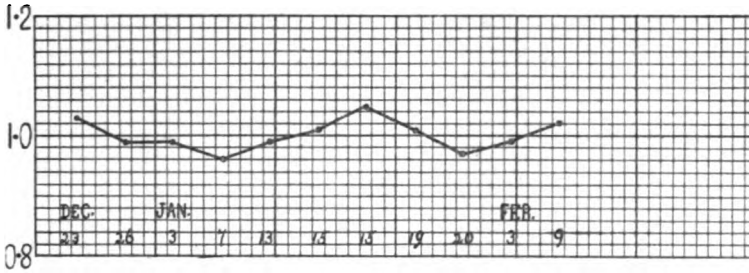
The object of this investigation was for the purpose of finding a means by which an early diagnosis could be made in suspected cases of pulmonary tuberculosis. For this purpose I made use of 20 cases of pulmonary tuberculosis, 25 cases of suspected pulmonary tuberculosis in which no bacilli could be demonstrated in the sputum after repeated examinations, and two non-tuberculous cases.

The non-tuberculous cases were used as controls in carrying on this investigation. These cases were proved to be free from tuberculous infection for the following reason. After repeated examinations of the blood serum of these cases at different intervals, the opsonic index did not fluctuate outside of the normal limits, that is between 0.9 and 1.1 (Chart A).

Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, June 4, 1909.

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CHART A



The tuberculous cases were examined as to the tuberculo-opsonic index; each having one examination, with the following results:

2	or	10%	had	an	index	between	0.8	and 0.9
1	"	5%	"	"	"	"	0.9	" 1.0
5	"	25%	"	"	"	"	1.0	" 1.1
3	"	15%	"	"	"	"	1.1	" 1.2
4	"	20%	"	"	"	"	1.2	" 1.3
2	"	10%	"	"	"	"	1.3	" 1.4
3	"	15%	"	"	"	"	1.4	" 1.5

Of these cases, therefore, 30% were within the normal limits, that is between 0.9 and 1.1. And if the normal limits of 0.8 and 1.2 were used as some investigators do, there would be 55% within the normal limits.

From these findings I concluded that one opsonic determination was not sufficient upon which to base a diagnosis of pulmonary tuberculosis, because either 30 or 55% (depending on whether the normal limits of 0.9 and 1.1, or 0.8 and 1.2 are taken) of these cases which were positively tuberculous were within the normal limits.

Dr Freeman, working in Sir A. E. Wright's laboratory, has shown that any active or passive motion applied to an area of infection, or the use of massage, or the application of a Bier's bandage above an area of infection, will cause a fluctuation of the opsonic index to that particular organism in question.

Chart B illustrates the fluctuation of the opsonic index, in a patient with pulmonary tuberculosis when subjected to this test.

The modus operandi of this phenomenon, which is known as auto-inoculation, may be described as acting in one of two ways, or both ways at the same time.

First: It may carry into the general circulation a greater or less amount of the products of the bacteria or the bacteria

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themselves. If this is not excessive, the result will be similar to that which is observed after an ordinary inoculation of a bacterial vaccine.

Second: Such an increase in the general circulation, may cause an increased outflow of lymph whereby a greater quantity of protective substance is carried into the infected area, and as a result a tendency to heal follows.

Paterson and Innman, taking advantage of this phonomenon, have had remarkable success in treating pulmonary tuberculosis, with what Paterson calls "graduated labor." The kind and amount of labor that is performed by the patient, being controlled by the opsonic index.

In my investigation I have made use of Freeman's discovery, by applying it in 25 cases of suspected pulmonary tuberculosis in which no bacilli could be demonstrated in the sputum after repeated examinations.

The method that was employed to induce an auto-inoculation, was as follows. A specimen of blood was taken in a Wright's blood capsule, then the patient was asked to breathe deeply for about one-half hour; by so doing the patient combined both an active and passive motion thereby causing an auto-inoculation. When the time was up, another specimen was taken, and two other specimens were taken after that at intervals of about one hour apart. All the capsules were sealed and the blood allowed to coagulate, the serum was the part used in the test, and as a rule it was examined within 24 hours from the time the blood was taken.

The technic for the determination of the opsonic index was the same as is employed in Wright's laboratory.

To obviate any personal equation in the counting of the slides, either the slides had the numbers, which corresponded to the patient's name erased and in their place letters marked, the key of which was kept by the one that did the erasing, up to such time when the count of all the slides was completed; or the slides to be counted were taken home and all information, as to which slide was being counted, was left in the laboratory. In this way I was unable to tell which slide I had counted until I returned to the laboratory.

Chart C illustrates the fluctuation of a control specimen when subjected to an auto-inoculation test.

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CHART B CHART C CHART D

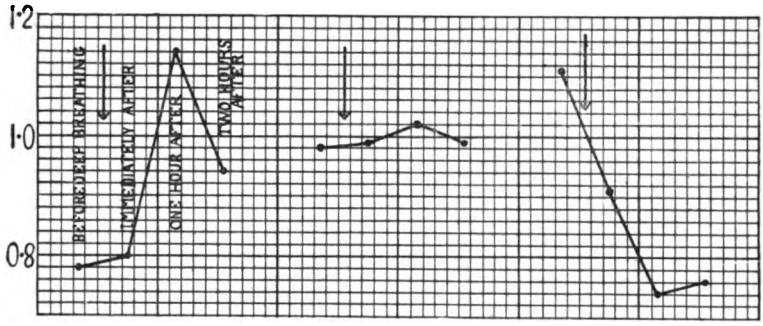
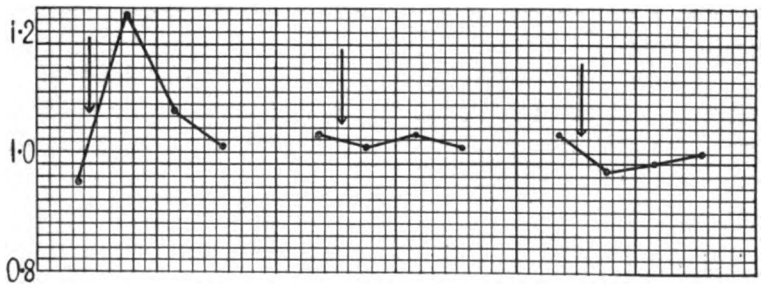


CHART E CHART F CHART G



The arrow indicates the time the auto-inoculation was produced. In all charts except A the indices were taken at intervals corresponding to those in chart B.

In all, 25 cases were examined; most of these were from the City Hospital where it is customary to place the patient in a ward for suspected pulmonary tuberculosis, up to such time when tubercle bacilli are demonstrated in the sputum and the patient sent to the sanatorium, or after repeated examinations of the sputum with negative results, the patient is discharged if in a condition to leave the hospital.

RESULTS.

A: 40% showed an abnormal fluctuation of the opsonic index; of this number—

50% had tubercle bacilli demonstrated in the sputum from one to 24 days after the auto-inoculation.

20% had tuberculous arthritis, no bacilli in the sputum.

10% had tuberculous adenitis, no bacilli in the sputum.

20% were discharged because no bacilli could be found in the sputum.

Charts D and E illustrate the kind of fluctuation that was obtained in these cases.

B: 60% showed no abnormal fluctuation of the opsonic index; of this number, in only one case were tubercle bacilli demonstrated in the sputum. The reason this case did not show a change in the index may be explained by the following condition: The patient was very much

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emaciated and had a very bad cough; it was impossible for him to breathe deeply as it caused him great distress. In this case, therefore, there was not sufficient auto-inoculation produced to cause an abnormal variation in the opsonic index.

Charts F and G illustrate the kind of fluctuation that was obtained in these cases.

CONCLUSIONS.

First: The use of the opsonic index in the method that I have described, is of great value in the diagnosis of suspected pulmonary tuberculosis; by its use one can demonstrate the presence of tuberculosis long before bacilli are found.

Second: By inducing an auto-inoculation, or, when this is impossible, by making a number of examinations on two or three successive days, and at different times of the day, one can differentiate tuberculous disease from any other disease regardless of its location.

I wish to thank Drs Wagner, Lichty and Updegraff of the visiting staff, and Drs Bohm, Biglow and Brooks of the resident staff, for the privilege they have given me of utilizing the material at the City Hospital.

664 Rose Bldg.

Extraction of the Lens in its Capsule—or "Intracapsular Expression of the Lens."

By C. C. STUART, M. D., Cleveland

Extraction of the lens in its capsule was brought prominently to the attention of the profession, especially in India and England, by Major Henry Smith, then as now, located in the town of Jullundur, in Northern India. In an article published in the *Indian Medical Gazette* for July, 1900, he reported a series of cases, 770 in all, which he had operated upon in this manner from June, 1899, to May, 1900, and he describes his method and results.

Extraction of the lens in its capsule is not original with Major Smith as it had previously been performed in Europe by Pagenstecher and in India by McNamara and Mulroney; but the method of extraction or, perhaps better called, expression was and is original with Smith and I shall refer to this later. Following Smith's publication of his method, it was taken up to a large extent by many of the Indian operators and by 1905 there was at one's disposal a large amount of English and Indian

Read before the Ophthalmological and Oto-Laryngological Section of the Academy of Medicine of Cleveland, March 26, 1909.

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literature dealing with the pros and cons of the operation. In a general way, I think it is fair to say that it was received with more favor by the junior Indian operators and criticized more severely by the older men in the service.

It is a matter of curiosity to note that not an American journal on ophthalmology mentions this work of Smith's until the fall of 1905,—a period of five years from its publication. In the meantime Smith published results of his work in 1901, '03, '04 and '05. At the meeting of the Ophthalmic Section of the American Medical Association in 1907, in a symposium on cataract, memorable papers were read by Jack, Weeks, Webster Fox, Wilder, Scales, Callan, Connor and J. M. Ray, representing nearly every section of our country, but very little mention was made of this work of Smith's. I quote you one sentence from Webster Fox to show you how slow we have been to grasp the importance of this man's work: "To-day the ophthalmic world is *slowly* turning toward the Orient and watching with interest the work done by Surgeon Major Henry Smith, I. M. S., in delivering the lens within the capsule."

As reports of Smith's work permeated this country it was slowly taken up and, as near as I can find, Walter Parker of Detroit, in March, 1906, was the first in the United States to publish a report of a case operated on in this manner. As a result of the operation, his patient obtained vision of 15/100. Very soon after this Cheney and Standish of Boston, each presented at the June, 1906, meeting of the American Ophthalmological Society a paper upon his experiences with this method of extraction. Cheney reported 10 cases and Standish three. Each considered his experience to be so limited as to allow of no broad deductions. Following them, Green presented the results of his first efforts by this method in a paper read before the American Academy of Ophthalmology and Oto-Laryngology in September, 1906. It was based upon 23 cases which had been selected at random or as they came.

Smith in a memorable article placed the subject before the profession in America in the *Archives of Ophthalmology* for November, 1905, and in 1908 he visited this country and presented an article on "Immature Cataract" before the American Ophthalmological Society. If you will read carefully Green's paper of 1906, you will find it not specially enthusiastic as to this operation and his judgment is very reserved. When Smith was

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in New York in 1908, Green met him and spent as much time as possible in his company and caught from him some of the delicacy of touch and manipulation, such a necessary adjunct to the successful performance of the operation. Returning to Dayton, Green again took up extraction in the capsule and has become its most ardent advocate in this country.

Having on hand during the past winter two cataract cases which seemed to be well suited to the operation, the writer visited Dr Green in December last to learn by personal inspection the method of procedure.

The writer has attempted the extraction in the capsule twice. In the first case, the zonule fibers would not rupture even after a manipulation of 10 or 12 minutes' duration and recourse was then had to extraction by the older method. The reaction was more severe than ordinary, but healing was good and just recently the patient was given a correction and obtained a vision of 6/13.

The second case was a male, 50 years of age, with a nuclear cataract of each eye. In this form of cataract the lens is not completely opaque and extraction by the old method would be almost sure to require a secondary operation and be apt to be followed by an iritis due to leaving behind some lens debris. The lens was extracted in its capsule: a slight amount of vitreous was lost, but the ultimate result was very good. Three months after the operation the patient obtained a vision of 6/10 with his correcting lenses.

Now in what does extraction by this method differ from that performed in the classical manner in this country. The original incision is practically the same. At first Smith advocated a corneal incision but of late has abandoned it. The iridectomy is made in the ordinary method, but instead of performing a capsulotomy, or as Smith says "scratching the capsule," he places the convexity of a strabismus hook over the junction of the lower and middle thirds of the lens and presses steadily backward at the same time making a counter-pressure at the upper margin of the wound with a spatula. This is kept up continuously until the zonule fibers rupture and the lens slowly emerges or vitreous appears in the wound, when, still keeping his hook in position against the cornea, he passes the spatula boldly behind the lens and coaxes the lens out, seeking to avoid any rupture of the capsule. This is the description of

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the method of extraction as originally given by Smith, but it has since been modified, by Smith himself and by others. When visiting Dr Green, I found that instead of using the curve of the strabismus hook he was using its blunt point: instead of making the counter-pressure above the corneal incision he was making it just below the lower corneal margin: instead of steady backward pressure, he was performing a constant stroking movement through the cornea upon the lens in a side to side manner. His idea of what occurred during the passage of the lens was that the pressure on the lens below tilted forward the upper portion of the lens, ruptured the fibers above, the lower ones also and that the lens made a forward somersault just before emerging. Later Dr Bruner and myself visited Dr Green in February, 1909, and then we found that he was outlining the lower curve, or rather the lower edge of the lens, by rubbing and pressure on the cornea and attempting a posterior somersault of the lens by getting his hook as much back of the lens as possible, but maintaining the same relative position for counter-pressure.

I think it a pertinent question to ask: Why do we seek any abandonment of the old method of cataract extraction and follow new gods? The great advantage claimed for this method of procedure is that, by extracting the capsule with the lens, one avoids all necessity of later needling operations; that iritis is reduced to almost nil, due to absence of capsule and lens remnants, and that vision is better than after the classical method.

Its disadvantages are the great liability to loss of vitreous; that this escaping vitreous is a most excellent culture medium for organisms and consequent infection of the eyeball; that vision is many times no better than under the old method and that while at first better, it may be lost later due to retinal detachment which may follow late upon these vitreous escapes; that the trauma is much greater than under the old method and that it can be performed successfully only by one who has much experience in the technic of the operation.

It was a matter of curiosity to me to try to learn what it was that led Major Smith to perfect this new method of extraction or expression. With this in view I have recently written Dr Green to ask him if in any of his conversations with Major Smith, he had put a similar question to him. In reply he gives me the following four reasons:

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1. That the capsule was a source of trouble and often danger when needled.

2. That practically all cases with loss of vitreous made a smooth and uneventful recovery.

3. That loss of vitreous, up to one-third its volume, did no harm.

4. That vision became better when the capsule was removed.

Smith himself, in the *Archives* of 1905, states that "he was led to extraction in the capsule by the observation that in some of his earlier operations, when a capsulotomy was performed by the old method, a nervous patient would shoot out both the lens and its capsule and also vitreous and, contrary to what might be expected, a fair result would be obtained with good vision."

I am personally led to the belief that Smith started this operation and devised its details for other reasons also: (1) That McNamara operated in this manner years before in India. (2) That Mulroney, in India, had by 1894 a record of 3400 extractions in the capsule, but by a different method. (3) That extractions in the capsule, avoiding the necessity of secondary operations, can be sent from the hospital in a short time and do not have to return: a matter of much importance when one is doing several thousand a year and other operative work besides. Herbert says that in his experience in Bombay, he must do his needling operations within 10 days of the original operations or they cannot be done at all: a thing we would not think of doing here. These, to my mind, are some of the additional reasons which brought Smith to extraction in the capsule. In other words it was the necessity which confronts an operator with an immense amount of operative material and meager facilities for caring for the same, for we must remember that Major Smith has in the past 10 years performed over 20,000 cataract extractions besides an immense amount of surgical work in other lines. He has what he calls "throng seasons" in the spring and fall when he will perform 50 cataract extractions a day and his yearly average is between two and three throusand cases.

What position this operation will take in this country is an unknown factor. Its advantages are evident to workers in this line, but the manipulative technic required to give continuous successes puts it beyond the bounds of safe work for many American operators.

105 Lennox Bldg.

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A Case of Acute General Peritonitis in a Ten Year Old Girl.

By F. E. BUNTS, M. D., Cleveland.

In an article entitled Peritonitis in Young Girls Following Acute Salpingitis, by Prof. Dr. Riedel, *Archiv f. Klin. Chirurg.*, the statement is made that the prognosis is absolutely unfavorable; all die. Riedel relates the history of eight cases, all under nine years of age. In five salpingitis was demonstrated at autopsy. There was no evidence of gonorrheal infection, streptococci and staphylococci being demonstrated by cultures. The author emphasizes the difficulty of diagnosing this condition from that of appendicitis, abdominal tuberculosis, etc. General acute peritonitis following gonorrheal infection in young girls evidently can not be regarded in such a serious light. Out of 33 collected cases (Operative Gynecology, Kelly) there were five deaths, two following operation and three without operation. In one case submitted to laparotomy on mistaken diagnosis of perforative appendicitis; recovery followed.

That this mistake in diagnosis is one readily made, is illustrated by the following case which came under my observation.

A girl 10 years of age, with no previous warning, having been apparently in good health, was taken suddenly with severe abdominal pain and vomiting. The physician, called shortly after, found the child suffering from pain fairly well diffused over the abdomen, but distinctly local rigid tenderness over the appendicular region, increasing rapidity of pulse, temperature above 100°, and considerable nausea. Thirty-six hours after the initial attack she was sent to Charity Hospital, where I saw her at 11 P. M. At this time her temperature was 103.4°, pulse 130, leukocyte count 21,000, abdomen everywhere rigid, flat and extremely painful, but most tender on the right side, so that she could barely tolerate the touch of a finger. I diagnosed a general peritonitis, probably due to ruptured appendix, and proceeded immediately to operate, making the right lateral gridiron incision. Upon opening the abdomen there was an immediate discharge of what appeared to be a thin, odorless pus; the quantity was not great, but it was to be seen everywhere between the coils of intestines. The omentum was non-adherent, but red and inflamed, as were all visible coils of the intestine, in addition to which there were large strips of thick lymph attached to many of them. The appendix was involved in the general inflammation, but was evidently not the origin of the peritonitis, since it was hardly perceptibly enlarged, and upon subsequent examination proved to be free of pus, mucus or feces. Intra-abdominal search for the origin of the trouble was unavailing; no intestinal perforation, enlarged tube, or distended gall-bladder could be palpated and nothing in the mother's history of the case gave any clue to its nature. After sponging out the pus as far as possible without eventration and without flushing, the abdomen was closed without drainage. While the

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dressings were being applied, it occurred to me to examine the vagina. This disclosed free pus, which proved under the microscope to contain gonococci and streptococci. Unfortunately no smear or culture was made from the abdominal pus. Subsequent investigation showed the infection to have occurred through direct contact with a boy, aged 13, who was himself the victim of an attack of gonorrhea from some source unknown to me. On the morning following the operation the temperature had dropped to 99 2-3°, but from that time gradually rose until the next morning, when the temperature was 102 4-5°, pulse 170, the abdomen was greatly distended, bowels inactive and the patient suffering constant agonizing pain and vomiting, and, so far as one could judge from the clinical picture, rapidly approaching a fatal termination. In addition to ice packs to the abdomen, an injection of antistreptococcic serum was ordered. The following day the temperature had dropped to 100° distension and pain were greatly diminished and nausea was entirely absent. On the morning of the fifth day from the beginning of the attack her temperature was normal and for the first time a small amount of liquid nourishment was allowed. The subsequent history was entirely uneventful, the child making a good recovery. Antiseptic vaginal douches were given in addition to the other treatment.

There are several interesting features presented in this case, but the chief one hinges upon the diagnosis. The sudden onset, severe pain, vomiting, increase in pulse and temperature, and particularly the localized right-sided tenderness were practically identical with the symptoms of an acute attack of appendicitis, and in the absence of a vaginal examination could not have been differentiated from it. It has invariably been my practise in all suspected attacks of appendicitis in women in which there was the slightest room for doubt, to make a pelvic examination, but I must confess that in the present instance the attack seemed such a typical one of appendicitis, that having due regard to the age and social position of the child, it did not occur to me until just before removing the patient from the table, to examine a possible source of infection in the vagina. The symptoms developed so rapidly that the infection evidently extended through the uterus and tubes before the latter could be sealed, thus accounting for the absence of any tangible change in the right tube, which I palpated at the time of operation.

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Hallux Valgus and Bunion

By GEORGE I. BAUMAN, M. D., Cleveland

Hallux valgus and bunion have received very scant consideration in the literature and one might say that the subjects of this painful affection have received almost as little consideration at the hands of physicians and surgeons.

As long as the rigors of climate and the dictates of fashion force us to wear shoes and stockings just so long will we suffer from foot troubles and so long as the shoes and stockings are so faultily shaped and constructed as they are and have been, will we suffer particularly from hallux valgus and bunion. In short the sole cause of these affections is to be traced to the wearing of shoes and stockings, particularly tight and ill-fitting ones.

Too little importance is usually attached to the role played by the stocking in the development of these deformities. They should be soft, light, loose, and made with a separate compartment or "finger" for the great toe; this last, I think, is of considerable importance.

The shoe, being the chief cause of these and other foot troubles, should receive the most careful consideration. Inasmuch as there is not a strictly properly shaped shoe on the market and everyone is not in a position to dictate the making of his shoes, one must accept as nearly as possible the best that is offered in ready-made shoes. A properly shaped shoe should be absolutely straight on the inner side to the end of the great toe where it could then be squared or rounded off according to taste or fashion. If these were made in all sizes, from children's up, it would then be possible for the foot to grow and develop without a sign of hallux valgus and with fewer cases of flat-foot. At present in the purchase of shoes the best one can do is to approximate this ideal as nearly as possible. It seems superfluous to add that the shoe should have sufficient width to comfortably accommodate the foot.

In the prophylactic treatment the proper foot and leg exercises and the correct position in standing and walking should not be forgotten.

Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, May 10, 1909.

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In addition to the above measures in an early or mild case of hallux valgus and bunion a splint or toe post to separate the first and second toes may be necessary, and since in these cases flat-foot is so common it may be made a part of a flat-foot plate.

In severe cases nothing short of surgical interference will give permanent relief. In these there exists a contracture of the tendon of the extensor proprius pollicis and of the external ligament of the metatarsophalangeal articulation and so much hyperostosis of the inner surface of the head of the first metatarsal that it is mechanically impossible to straighten the toe. In addition the bursa and frequently the joint is infected.

There have been a number of operations used, all of which have been more or less successful. There have been some bad results, however, chief among which are those in which there is much shortening and a stiff joint, but even these are usually an improvement over the previous condition. Although some good results are claimed by it, I think an entire resection of the head of the metatarsal is seldom justifiable. Resection of a wedge-shaped piece from the inner side of the neck of the metatarsal is a very successful operation. A preferable operation is as follows: a slightly curved incision is made over the inner surface of the head of the first matatarsal bone which latter is freely exposed; after incising and retracting the periosteum enough of the inner surface of the hypertrophied head of the metatarsal is removed to allow the toe to be straightened; the tendon of the extensor proprius pollicis should be divided subcutaneously to help in this; a transplantation of the tendon unnecessarily complicates the operation; if necessary the external ligament of the metatarsophalangeal articulation may also be divided; after smoothing off the edges of bone a small drain is inserted and a large antiseptic dressing applied. The great toe may be held away from the second for two or three days by cotton and bandaging, when, if no sign of infection is present, a plaster dressing may be applied. This should be worn for 10 days when passive motion should be begun and the toe held out with a splint. Usually in two weeks the patient is again at work. The toe should be held in the correct position for several weeks and only the best possible shoes should be worn.

In this way the patient is entirely relieved of his pain and he has a straight, movable and only slightly shortened toe.

310 Osborne Bldg.

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The Cleveland Medical Journal

CONTINUING { THE CLEVELAND MEDICAL GAZETTE and THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

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EDITORIAL

A Safe and Sane Fourth of July.

The eminently satisfactory results of the celebration on the fourth of July in Cleveland this year, is a matter for congratulation and satisfaction to all those who have worked toward this end. While the list of deaths and accidents in other cities, which permitted the usual license in celebrating, was appalling, this city established an enviable record in not having a single death or serious accident.

This is the first year that such an experiment has been tried in a large city and while Cleveland was not alone in enjoying this distinction, it was the largest city in the country to demonstrate the feasibility of such a plan.

A large share of the credit for this result, which has met with such universal approval, is due the Academy of Medicine

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which for several years has urged such a measure. Physicians, above all others, have opportunities for seeing the terrible results of wounds resulting from firearms and cannon-crackers and the liability to the development of tetanus after such injuries has been vividly impressed upon not a few of the profession. The Academy of Medicine, therefore, through a committee brought the matter formally before the City Council several years ago and urged the passage of an ordinance, which the City Solicitor was asked to draw up, prohibiting the use of dangerous fireworks. Sufficient opposition, however, developed to block the passage of this ordinance. The following year the position taken by the Academy was very greatly strengthened by the attitude of the newspapers and their agitation for a reform and an ordinance was passed which, while not so far reaching as was desirable, was nevertheless a move in the right direction.

Finally, a little more than a year ago, the Kresge fire, due directly to fireworks, served to impress upon the public the necessity for reform and a satisfactory ordinance was passed by the City Council. This measure prohibited both the sale and use of fireworks within the city except under a special permit from the authorities.

The comments in the newspapers of other cities, drawing attention to the record established here, indicate what a valuable example has been set and argues well for an extension of the movement for a safe and sane celebration of our national holiday.

The Medico-Pharmaceutical Section of the Academy of Medicine.

The formation of this section of the Academy represents one of the most important moves toward professional pharmacy, that has ever been taken in this country. Joint meetings of medical and pharmaceutical bodies have often been held; there is in one city at least a special society in which physicians and druggists hold equal rank; but as stated by one speaker at the first meeting of the section, this was the first time that a local medical society has formed a section in which doctors and druggists met on equal basis, representatives of each calling having an equal voice in the selection of officers of the section.

The meeting was attended by about an equal number of physicians and pharmacists, the latter being elected associate members of the Academy and active members of the section.

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It is the intention of the officers of the section to hold from four to six meetings a year, and at each meeting it is intended to have a paper on some class of U. S. P. and N. F. preparations —say tonics one time, purgatives another—followed by a free discussion of the paper by both physicians and druggists. It is also intended to have at each meeting a discussion of incompatible prescriptions, and at the first meeting a committee was appointed to arrange for a permanent exhibit of U. S. P. and N. F. preparations, in the auditorium of Cleveland Medical Library, the specimens illustrating the paper of the evening being offered as a nucleus of the collection.

Pharmaceutically, the section will strengthen rather than weaken the local A. Ph. A. branch, it being intended to devote the meetings of the A. Ph. A. branch to discussion of that line of preparations scheduled for the next meeting of the section.

The Geer Case.

In forty minutes after the case had been given them, a jury in the Criminal Branch of the Cuyahoga County Court of Common Pleas, on May 28, 1909, found Dr. Norman M. Geer guilty of attempting to perform a criminal operation. Judge Theo Strimple in sentencing the prisoner to four years' imprisonment in the Ohio penitentiary stated that 15 years ago, he, as prosecutor, indicted Geer on a similar charge but failed to convict him. He further stated that during all these years Geer had continued to earn his livelihood from this nefarious form of practise.

The attorneys for the defense at once appealed to the Circuit Court claiming that the offense of which Geer had been found guilty, i. e., attempting to perform a criminal operation, was not a crime in Ohio. The court agreed to this contention and ordered a new trial. The second hearing proceeded along the lines suggested and the jury promptly returned a verdict of "guilty of performing a criminal operation" and Geer was again sentenced to the penitentiary for four years.

Nothing has occurred in recent years that has so shocked the morals of the community as this revolting and heinous crime and if the tone of several editorials which have appeared

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in all the local papers is a criterion this man has at last received in a small degree the punishment he deserves.

In the past he has been successful in escaping conviction and this fact seems to have made him bolder as it has been common knowledge among the profession that he has confined his practise to performing criminal operations.

To Jno. A. Cline, the present county prosecutor, is entitled all the credit for the vigorous manner in which he has conducted this case when former officials with stronger evidence have utterly failed and he has expressed the determination that his interest in the matter will not cease until Geer is in the penitentiary. The attitude Mr. Cline has taken in matters in which the medical profession are deeply interested is one that calls for our united approval and support. His activity in matters of this kind adequately demonstrates his force of character and moral stamina and if more convictions as occurred in the Geer case can in future be accomplished the standard of medical practise will be greatly elevated in Cleveland.

Department of Therapeutics

Conducted by J. B. McGEE, M. D.

Pneumonia in Children: Louis Fischer, in the *International Clinics* (Vol. II, Series 19, 1909), believes that in the treatment of pneumonia (lobar) our first duty is to isolate the patient and next to use the largest room in the house with abundance of fresh air. Admit all the sunlight possible and keep visitors out. The temperature of the room should be kept between 68° and 70° F., never warmer, rather cooler. Avoid draughts. Do not expose and chill a devitalized child by roof exposure; it may do harm as he knows of a death due to such exposure in winter. To produce diaphoresis one drop of tincture of aconite added to 30 drops of liquor ammonii acetatis can be given every two hours until perspiration results. A two minute mustard foot bath at body temperature will aid in producing diaphoresis. Some children are sensitive to high fever and may show twitching or convulsions while older children may have a muttering delirium. Some cases bear high temperature while others show marked depression and somnolence. If the skin is hot and red and the temperature 105° F. or over then a tub bath should be given at 100° F. to which cold water is added until the temperature of the bath is reduced to 90° F. During the bath constant friction should be applied to the chest. If the pulse is good before the bath no cardiac stimulant is indicated, but if the pulse is weak, then it is safer to give ½ grain of caffein sodium benzoate or 1-100 grain strychnin with 10 minims whisky diluted with a little water. The tub baths should be

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used only for very high temperatures of 105° or higher. Between 103° to 105° F. he prefers the tepid pack at 85° F. renewed every few hours, care being taken not to disturb the child in a sound sleep. Flushing the rectum or colon with one or two pints of cool water at about 80° F. is a good means of reducing the fever. A dose of one or more teaspoonfuls of castor oil to relieve the intestinal tract is advisable and in older children he prefers the citrate of magnesia to the oil. He frequently uses acidulated water about 15 minims of the diluted phosphoric or diluted hydrochloric acid to a tumblerful of sweetened water allowed *ad libitum*. The strength must be supported by proper feeding and most cough mixtures are an abomination. All fever drugs are cardiac depressants and he does not use them either in hospital or private practise.

Typhoid Fever: In the May number of *American Medicine* Robert Coleman Kemp treats concerning the value of enteroclysis in typhoid. It seems a curious fallacy that certain physicians employ intestinal irrigation in the gastro-intestinal disorders of infants and children, in colitis and dysentery, and yet fear to use it in typhoid fever or deny its efficiency. He emphasizes certain facts: (1) Fatal autoinfection can occur with constipation. Holt reports such cases. (2) The stool consists in large part of bacteria many millions in number. (3) Bowel movements occur even after the abolition of food, and they consist chiefly of bacteria, mucus, epithelia, etc. (4) If by operation a portion of the intestine be made to terminate in a blind pocket, accumulation may occur therein and even ulceration and perforation result, though no food remnants enter the pocket. Though the bowels may have been supposedly thoroughly cleansed by catharsis and only water or soluble broths have been administered, it is surprising the amount of material cleared out by enteroclysis. One can employ a simple enema of normal saline solution once or twice a day, with an s. s. enema each morning, quantity one liter each—the s. s. injection at 105° F. and the saline at 110-120° F. If there is much tympanites or difficulty for the patient in evacuating the injection, two catheters or the recurrent rectal tube can be substituted. He usually irrigates with the latter, morning and evening, employing several quarts on each occasion as a routine. It may be necessary to irrigate more frequently, and he believes the use of irrigation or enteroclysis is one of the most important features in the treatment of typhoid fever. Acetozone, 1-1000 by irrigation (several quarts) daily, is also of service, the only contraindications are hemorrhage and peritonitis. By the irrigations the small intestine is emptied out into the large intestine and this in turn cleared out. Absorption from accumulation in the colon and rectum is prevented and hence toxemia is lessened and the temperature is reduced, gas if present is removed from the bowel. The large intestine is kept clean and elimination of the toxins through the diuretic action of the injections on the kidneys is promoted.

Diabetes Mellitus: In the *Medical Record* for June 26 J. Rudisch reports the results of two and a half years' experiments to determine the value of certain atropin salts in diabetes mellitus. His results were so satisfactory that he records them that

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others may be led to continue the investigations. There was no attempt made to select cases, the cases including severe as well as mild cases, while the ages varied from nine to over 70 years. A carbohydrate-free diet was always given at the beginning of the treatment in conjunction with the atropin. The action of atropin is thus summed up: (1) Reduction in the amount of sugar excreted. (2) Increase in the carbohydrate tolerance. He has administered the atropin in the form of the methylbromid and the sulphate. The former has the advantage of being much less toxic but its effects are not so prompt as those of the sulphate and its cost, moreover, limits its use. As the initial dose of the methylbromid he has given 2-15 gr. to adults gradually increasing by 1-15 gr. until 8-15 *t. i. d.* are being taken. The initial dose of atropin sulphate should be 1-150 gr. *t. i. d.* that may be gradually increased to 1-20 gr. *t. i. d.* Children require a dose proportionate to their age. His youngest case, a nine-year-old boy, received an initial dose of 1-250 gr. of the sulphate three times a day and this dose in the course of several months was gradually increased to gr. 1-10 per diem. It is noteworthy that these unusually large amounts of atropin are well tolerated, provided the initial dose is small and the increase gradual. It is not necessary to attain the maximum dose in the majority of cases, however, much smaller amounts often causing the glycosuria to disappear. With the appearance of the first toxic symptom, usually a marked dryness of the throat, the atropin was either stopped entirely or more often the attempt to increase the dosage was abandoned temporarily. It was always possible to resume the drug after a period of rest. While the tolerance for atropin varies in different individuals, he has not observed a single case in which a peculiar susceptibility totally precluded the use of one or other of these salts. In no instance was an atropin "habit" acquired, nor were there any deleterious effects upon the general health observed from its prolonged administration.

Heart Failure: In the *American Journal of the Medical Sciences*, W. Parker Worster considers the prevention and treatment of heart failure in infectious diseases. Heart failure, that demon feared by the physician, stands by the bedside of every patient suffering from infectious fever. This enfeebleness of the heart arises from a relaxation of the vasomotor nerve centers by reason of which the capillary vessels lose their elasticity and normal tone. In infectious fevers the danger lies not in the heart, but in the toxemia which is spending its full force upon the nerve centers, and thus impairing the functions of the organs dependent upon them. Cardiac action, secretions and nutritional processes are all being crushed by the octopus infection, but the cold bath, or any form of application of water, when properly applied, according to the indications of the case, come to the rescue. The nervous system is refreshed, the eye brightens, the mind clears up, the inspiration deepens, the pulse is slowed and rendered less dicrotic. The excitation of cold is the most valuable, powerful and reliable stimulant when properly applied, and accomplishes many other important indications. In this manner is cardiac action maintained and dilatation of the capillary vessels

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always follows friction, which must never be omitted, as it is the *sine qua non* in all applications of cold water. Chilling of the patient and a little chattering may sometimes occur, but there is nothing to be feared from it, as the baths generally reduce the temperature 2° or 3°, deepen the breathing, stimulate the heart, and refresh the patient as no other remedial agent is capable of doing. In order that the effect be continuous upon the heart, it is necessary that the operation be repeated every three hours. The most important effect of these applications is the aid and sustenance they afford the central nervous system, which bears the brunt of the fight, stimulating it to enhance the vital powers of the patient, and thus placing him on the road to a rapid recovery. Management of the patient by hydrotherapy renders the prognosis of the case entirely different from management by the expectant plan, as by hydrotherapy we enhance the vital powers against the lethal agencies evolved in the infection process.

Phosphorus: W. Koch in the *Journal A. M. A.* for May 1, summarizes a series of experiments as to the nutritional value of phosphorus compounds as brain foods: (1) There is no evidence of any need to supply phosphorus to the brain in conditions of exhaustion as a lack of that element has not yet been demonstrated. The actual amount lost in the exhaustion of general paralysis cannot of course be replaced on account of the inability of the central nervous system to regenerate. (2) The phosphorus required for the growth of the brain is amply supplied by the phosphorus of our daily diet. If desired, the addition of phosphorus-rich foods such as eggs, sweetbreads (pancreas), liver, and some meats can be made to meet further requirements and the phosphorus in them will far exceed in amount that obtained in less natural form from the prescribed doses of any of the various drugs in commercial use. The use of such foods is, however, limited by their richness and their tendency, on account of their rich fat content, to interfere with gastric digestion. (3) As far as the nervous system is concerned, the addition to the diet of commercial phosphorus compounds such as hypophosphites, glycerophosphate, phytin, lecithin, etc., is to be discouraged because, in the first place, there is no conclusive evidence that they have any effect on the growth of the brain and, second, the amount usually recommended means only a very insignificant addition to the amount of phosphorus (even in its special forms such as lecithin) taken with the daily food.

Diabetes: *Merck's Archives* for May considers the treatment of diabetes, stating that it is important to examine the contents of the stomach in every case of diabetes, since the administration of hydrochloric acid may be indicated. A second cause is an absence of secretin from the intestinal mucous membrane: In such cases the administration of secretin or prosecretin may do much good. Lastly, the pancreas itself may be so altered that no more internal secretion is manufactured. While the indiscriminate use of opium and allied drugs is therefore no longer in place, the importance of diet is still the same. During an aglycosuric period the tissue cells rest their glycolytic function, and, in functional conditions certainly, a cure may result. Even in

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more serious disturbances the cells may recover to a certain extent and may be able to utilize sugar properly for a long period. Greater difficulties are experienced when acetone is also present. It seems that here all three food products, the starches, proteids and fats are improperly utilized. The exact significance of acetone is not yet understood, nor is it always the danger signal of approaching coma, as was formerly believed, since cases have been known to live for three or four years with intense reactions. As a rule, however, in such cases treatment must be directed to the acetone rather than the sugar, unless the acetone is due directly to a wasting of the body fat as a result of inanition. That the administration of pancreatic preparations and prosecretin may do excellent service in grave diabetes is evident from the report of W. M. Crofton *(Lancet)*. The patient, a girl of 13 years, passed as much as 15 pints of urine containing 10.5% of dextrose in 24 hours. From four to eight capsules of holadin, daily, reduced the amount, after a number of months, to 5½ pints with 10% of sugar. Prosecretin, three one grain tablets daily, was then substituted and then only 2½ to three pints were voided daily with five percent of sugar. The diet was not changed so that these results represent the effect of the drugs alone.

Sodium Succinate: In the *American Journal of Clinical Medicine* for June, Wm. F. Waugh states that he has used sodium succinate in the treatment of gall-stones for more than a quarter of a century and in that time has not had a single case in which the remedy failed, that is in those cases in which the drug was appropriate. Sodium succinate is not a remedy for the paroxysm and he does not believe it has any power whatever in dissolving gall-stones: his conviction is that it acts simply by disinfecting the biliary passages and subduing the inflammation. This infection is the true enemy with which we have to contend and when the gall-bladder becomes inflamed, the presence of the calculus acts as an irritant and excites efforts for its expulsion and then it is when we have an attack. At other times the stone may lie there, even during the lifetime of its possessor, without arousing a suspicion of its presence. Give five grains of sodium succinate before each meal and on going to bed. Continue this as long as the patient has any evidence whatever of the presence of gall-stone, even such as a slight amount of bile, a mere trace, in the urine would indicate. The medicine is to be continued from one to three months longer. He usually tells his patients that they will have to take the medicine for one year.

During this time the paroxysms will continue, but they will be less frequent and less severe at each successive return, until, well within the time stated, they cease entirely. This treatment is applicable to all ordinary cases of gall-stones. When a calculus has started on its passage, has become impacted and is ulcerating its way through, or when any other mechanical condition exists, requiring mechanical methods for relief, treatment by sodium succinate or by any other drug is not indicated: surgical intervention is imperatively demanded and should not be postponed after the diagnosis has been made. His personal experience with this drug in this malady has been greatly reinforced by many other physicians who have tried it with similar success.

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Serum in Hemorrhage: In the *Journal A. M. A.* for June 12 (*Centralblatt f. Med. u. Chir.*) Wirth treats especially of the use of serum in hemophilia. His analysis shows that the results of gelatin, calcium, strontium, and ovarian and other organ therapy have been disappointing, although an occasional success has been realized. Far better results have been obtained with subcutaneous or intravenous injections of fresh animal serum, the method inaugurated by Weil, although Bienwald in 1897 reported the arrest of hemophilic hemorrhage by local applications of normal human blood. Twenty cases have been published in which injection of serum arrested hemophilic hemorrhage more or less completely, and to date only two cases have been reported in which no benefit was derived. The effect of the serum does not last over a month. The local action of the serum is also considerable, sometimes rendering repetition of the injections unnecessary. Wirth reports one case, a boy of 14, known to be hemophilic, with persisting hemorrhage from the nose, throat and gums, which stopped under application of diphtheria antitoxin locally and injections of from 15 to 20 c.c. No by-effects were observed and the hemorrhagic tendency was kept under complete control by further injections once a month for six months. He has thus treated 23 patients with hemorrhage from various causes and is convinced that the injections of serum are actually efficient in the treatment of hemorrhage. This method is indicated above all in affections in which the coagulating power of the blood is reduced, although it may prove effectual in other forms of hemorrhage. As a rule 20 c.c. of serum is enough, but 40 c.c. may be injected without harm. No disturbances were observed in his cases, not even when the injections were repeated. The subcutaneous route should be preferred, unless the intravenous is urgently required. Horse serum seems preferable, and ordinary diphtheria antitoxin may be used, selecting the vials with the latest date, and also applying the serum locally to the bleeding spot. In some cases hemorrhages in the lower part of the bowel or from hemorrhoids were arrested by injection of 10 c.c. of beef or horse serum into the bowel.

Chronic Nephritis: Norman E. Ditman and Wm. H. Welker in the *New York Medical Journal* for June 4 consider the relation of deficient oxidation to chronic nephritis. They believe that as a preventive measure, none is more important than the diminution or abolition of alcohol as a beverage, while of all varieties of food, that most capable of being transformed into toxic products and most active in its reducing power, is meat. Of all conditions concerned in the production of chronic nephritis and predisposing to the possibility of an eclamptic attack in pregnant women, few are of equal importance to intestinal putrefaction. Treatment in a general way should consist in selection of suitable climate or environmental temperature, avoidance of alcohol, use of fresh air and sunlight, proper exercise, avoidance of pregnancy, prevention of intestinal putrefaction and control of diet. Of drugs which are employed in nephritis, few have been viewed with suspicion except opium. The fear of the older physicians as to the use of this drug is uremia, founded largely upon their ideas of its uncertain elimination,

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and this is justified by recent investigations as its use lessens oxidation. Of drugs considered specific for the condition of nephritis itself, and capable of accomplishing the cure of a case once established, there are none and the use of those supposed to be of value is indicated only symptomatically. In the presence of edema salt should not be allowed. With intestinal putrefaction present, its removal may be attempted by continued control of the diet, by the use of intestinal antiseptics, the use of intestinal oxidizing agencies and by the mechanical removal of putrefactive matter. They conclude that many chemical substances which by complete oxidation are converted into innocuous products, may by *incomplete* oxidation be decomposed into products of great toxicity. Among the most toxic substances formed in the body, are the incompletely oxidized nitrogenous products of protein decomposition. There is strong evidence that the oxidation processes in chronic nephritis are deficient, especially in the chronic diffuse type. Of the substances capable of causing toxic, symptomatic and pathologic effects in nephritis, the members of the creatin group are of special interest. There are many factors in nephritis capable of diminishing oxidation. Agents which increase oxidation have long been the favorites in the treatment of chronic nephritis. Their more extended use should be not only advantageous in the treatment, but instrumental in preventing that disease.

Tetanus: In *Merck's Archives* for June, William Hessert considers the treatment of tetanus, the period of incubation in which is arbitrarily stated as under 10 days in acute cases and over that time in the subacute and chronic cases. The reason why curative treatment is so unsatisfactory is due to the fact that by the time a diagnosis can be made, the toxin is already locked up in the nervous system and out of reach of any remedy so that the best treatment is the prophylactic use of the antitetanic serum. The indications in cases of developed tetanus are: (1) Remove the source of further toxin supply by proper local wound treatment. (2) Neutralize the toxin which may be contained in the tissue juices by massive injections of antitoxin subcutaneously. (3) Employ some remedy to allay the reflex excitability of the spinal cord; e. g. the subarachnoid injections of magnesium sulphate. (4) Nourish and support the patient. Antitoxin in spite of its great experimental efficiency in animals, and its undisputed value as a prophylactic has so far proved extremely disappointing as a curative agent, when the disease is fully developed. The reason can be readily appreciated when it is borne in mind that antitetanic serum, no matter how administered, can neutralize only that portion of toxin free and uncombined in the blood and lymph. It is immaterial how it is given, it circulates in the blood, neutralizes the toxin there and the surplus is excreted. None of it reaches the nerve cell where the toxin is locked up and therefore, if there is already a fatal dose of toxin in the nervous system when the case is first seen, no treatment will be of any avail. Statistics have shown: (1) That the mortality of tetanus has not been lowered by serum treatment and (2) that no special form of injection has any advantages over the subcutaneous, some methods being futile and sometimes positively

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dangerous (intracranial injections). He summarizes as follows: (1) General, accepted methods of local wound treatment should include use of hydrogen peroxid, and balsam of Peru. (2) The serum treatment should be limited to subcutaneous injections of at least 1,500 units twice daily, and be continued for days and weeks as the case demands. (3) Injections of 25% magnesium sulphate solution by lumbar puncture, exercising great care, especially with the initial dose and with children. Sit the patients up and repeat the injection as often as necessary and watch for toxic effects on the medulla, as on the heart and respiration. (4) Proctoclysis is a valuable adjunct. Good nursing with food and stimulation aid, and chloral and bromids can be given if not contra-indicated.

Apomorphin: In the *Therapeutic Gazette* for June, Chas. J. Douglas considers the action of apomorphin as an hypnotic. Apomorphin is one of the most peculiar and interesting remedies known to medicine. It is comparable to no other drug. It is *sui generis*. Although derived from morphin, it has none of the therapeutic properties of that remedy. It is an emetic and its hypnotic action, for it is the most prompt and vigorous of hypnotics, is totally different from that of any other known hypnotic. Douglas first called attention to its hypnotic properties in 1899. In the papers first published he gave $^1/_{30}$ grain hypodermically as the average hypnotic dose of the drug, and all the textbooks that have since referred to this property of the drug have quoted this figure. But it should be remembered that this is not a fixed amount as individual susceptibility to its action varies somewhat. If it is desired to avoid nausea, the dose must be as near to the emetic dose as possible without quite reaching it. If it is a little too small it produces no effect whatever, even if repeatedly administered every 30 minutes, as it has no cumulative action. On the other hand if the dose is a little large it produces emesis. We must sail between this Scylla and Charybdis if we would attain the ideal result of profound sleep without nausea. He has seen the wildest alcoholic delirium yield to this remedy and the patient fall into a restful sleep within 20 minutes after the hypodermic administration of apomorphin. In such cases it is not important that nausea be avoided, as emptying the stomach does no harm. If the remedy is to be frequently exhibited, the dose must be gradually increased as toleration soon develops. He has been using apomorphin continuously since 1889 in his sanatorium work for hypnotic purposes and has found that in promptness and certainty of action it has no equal. While there are few infallible remedies, and this one may occasionally fail, yet among the hypnotics he knows of none that is so certain in its effects. Its safety is another advantage. As 1-10 grain is universally considered a safe emetic dose, the hypnotic dose of 1-30 grain must be absolutely devoid of danger. It is prompt, safe and sure.

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Academy of Medicine of Cleveland

The sixty-eighth regular meeting of the Academy was held at the Cleveland Medical Library, Friday, June 18, 1909, the President, W. E. Lower, in the chair.

The report of the previous meeting of the Council of the Academy of Medicine held Wednesday, May 26, 1909, was read by the Secretary. The report was, in part, as follows:

Arthur T. Carter, Joseph A. Neuberger and Charles J. Albl were elected to active membership.

The names of the following applicants were ordered published: For active membership: Jas. R. Thompson, John R. Philin and Maurice Schott. For honorary membership: E. P. Ravenel, Madison, Wis., and Richard C. Cabot, Boston, Mass. For non-resident membership: A. J. Hill, Akron, Ohio. For associate membership: H. M. Hanna, G. C. Mawer, D. V. S.; W. T. Sparhawk, D. V. S.; and F. B. Gott, attorney.

It was voted that the resignation of F. S. Pickett be accepted.

It was voted that the assessment by the Ohio State Medical Association of fifty ($0.50) cents per capita upon members of component societies be paid by the Treasurer of the Academy.

After discussion it was voted that the Secretary be instructed to sign for the Council an application to form a Medico-Pharmaceutical Section. The chair appointed a committee of three, T. Sollman, H. W. Rogers and L. C. Hopp, to secure a program and call a meeting for the purpose of permanent organization.

It was voted that a committee be appointed by the chair to investigate the report that a member of the Academy had falsified insurance reports and had admitted the same when a sworn witness in court: the chair appointed the following committee: R. G. Perkins, J. J. Thomas, J. E. Cogan and C. E. Ford.

It was voted that the Secretary confer with the Council of the Medical Library Association as to improving the seating in the library assembly room.

After discussion it was voted that it is the sense of the Council of the Academy of Medicine that the existing ordinance restricting the sale of fire-works should stand. The Secretary was instructed to communicate the foregoing to the City Council of Cleveland.

After discussion it was voted that the Council of the Academy of Medicine report to the Cleveland City Council that the Academy strongly favors a dog-muzzling ordinance, and that such a measure is imperative for the prevention and suppression of rabies.

After discussion it was voted that the President of the Academy be empowered to select the date for the joint meeting of the Academy of Medicine of Toledo and the Academy of Medicine of Cleveland at Cedar Point.

Barton Cooke Hirst of Philadelphia, Pa., who was to deliver an address, was unfortunately unable to be present.

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The program was as follows:

The Attitude of the Chamber of Commerce Public Health Committee toward School Inspection, H. G. Sherman, Chairman of Committee.

The paper was discussed by M. Rosenwasser, R. K. Updegraff, A. R. Baker, F. C. Waite, S. W. Kelly, E. S. Hannum, B. E. Sager, J. M. Fraser, and the discussion was concluded by H. G. Sherman.

COUNCIL MEETING.

A meeting of the Council of the Academy of Medicine was held June 24, 1909. The following were elected to active membership: H. G. Sherman, John R. Philen and James R. Thompson. To non-resident membership: A. J. Hill, Akron, Ohio. To associate membership: F. B. Gott, attorney, Mr. H. M. Hanna, G. C. Mawrer, D. V. M. To honorary membership: M. P. Ravenel, Madison, Wis.; Richard C. Cabot, Boston, Mass.; A. J. Ochsner, Chicago, and Frederick Forchheimer, Cincinnati.

The following names of applicants were ordered published: For active membership; E. K. Zaworski, Horatio F. Chisholm. For associate membership; W. T. Sparhawk, D. V. S., Henry H. Myers, D. V. S., Bernhard Anderson, masseur.

The resignation of A. H. Marvin was accepted and his name ordered placed upon the reserve list.

The resignation of J. M. Ingersoll as trustee was received and accepted.

L. W. Ladd was elected trustee of the Academy to fill the unexpired term of J. M. Ingersoll.

After discussion it was voted that the Council approve the chairs selected for the reseating of the library room as per sample submitted by Theodore Kundtz.

R. E. Skeel, Chairman of the Legislative Committee, reported that the Legislative Committee declined to pass upon the resolution offered by T. A. Burke, concerning the selection, by the Council, of medical expert witnesses.

After discussion, it was voted that the Council of the Academy of Medicine regards the present method of employment of medical expert witnesses as inadequate and injudicious, and earnestly recommends a radical change in the method of their selection. It was voted that the Chair appoint a committee of three from the Council to meet with a like committee of the Medicolegal Section to consider the original resolution.

Advertisements of two Academy members were submitted to the Council and it was voted that the Secretary be instructed to ask these members to appear before the Council at its next meeting to defend themselves of the charge of unprofessional conduct.

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MEDICO-PHARMACEUTICAL SECTION.

The first meeting of this section was held at the Cleveland Medical Library, Friday, June 25, 1909, the President of the Academy, W. E. Lower, in the chair.

The following officers were elected: Chairman, Lewis C. Hopp; Vice Chairman, M. G. Tielke; Secretary, J. B. McGee; Councillor, J. E. Tuckerman.

The program was as follows:

1. The Use of the Section to the Medical Profession, H. W. Rogers.
2. The Use of the Section to the Pharmaceutical Profession, Lewis C. Hopp.
3. The Important Official Flavoring and Coloring Vehicles (with demonstration), H. V. Arny.

The papers were fully discussed by T. Sollman, J. B. McGee, J. Spenzer, J. J. Thomas, M. Metzenbaum, C. E. Ford, N. Rosewater, R. K. Updegraff, S. L. Bernstein, L. C. Hopp, H. V. Arny, A. F. Pav, C. W. Benfield, W. F. Kuder, M. G. Tielke, E. R. Selzer and others.

The question as to the necessary qualifications of pharmacists for membership in the section was thoroughly discussed and was referred to a committee of three, M. J. Tielke, C. W. Benfield and W. F. Kuder.

A committee was appointed to arrange a permanent exhibit of U. S. P. and N. F. preparations in the auditorium of the Cleveland Medical Library, the specimens shown at this meeting being donated by H. V. Arny as a nucleus of the collection.

CONJOINT MEETING OF THE ACADEMIES OF MEDICINE OF CLEVELAND AND TOLEDO.

This meeting was held at Cedar Point, July 15, 1909, W. E. Lower, President of the Cleveland Academy of Medicine, in the chair.

Hon. Judson Harmon, Governor of Ohio, who was to address the meeting, was unfortunately unable to be present.

W. H. Snyder, President of the Ohio State Medical Association, in a short address, introduced the speaker of the day, John B. Murphy, Chicago, Ill.

The program was as follows:

Infection of Bones and Joints from the Standpoint of the General Practitioner and General Surgeon, J. B. Murphy, Chicago. (To appear in the *Journal A. M. A.*)

Certain experimental work upon dogs in which efforts were made to infect joints with virulent cultures of pneumococci were described. These showed that simple injections of cultures in a healthy joint were usually harmless, but if the synovial membrane was, at the same time, traumatized by scratching with the point of the needle, severe infection always occurred.

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The increased resistance of the synovial tissues to infection, following a preliminary injection of two per cent formalin solution in glycerin, was also pointed out. Stress was laid upon infections of the knee-joint as this was one of the most complex and easily damaged joints. The necessity for the reduction of pressure within the joint by means of aspiration and the proper use of extension was pointed out: Following such aspiration of an infected joint the injection of a small amount, one to four drams, of two per cent formalin-glycerin solution was advised to destroy the organisms and to promote a healthy reaction. The aspiration and the injection should be repeated several times at intervals of eight or ten hours if the fluid accumulated in the joint under pressure.

The differential diagnosis of an arthritis from an osteomyelitis and the necessity for prompt operative intervention in the latter was emphasized: The diagnosis was as a rule easy and the technic of an osteotomy in the early stages was not a difficult matter; the operation could, in an emergency, be performed with a scalpel and a gimlet.

Very satisfactory results were possible in the restoration of mobility in ankylosed joints, even when bony union had occurred. Photographs and radiographs of a number of illustrative cases were shown as well as stereoscopic photographs of the successive steps in such an operation. Improved methods of treatment of certain fractures such as Pott's, Colles' and those of the patella were described.

Book Reviews

Diseases of the Bones. Clinical Studies by Joel E. Goldthwait, M.D., Charles F. Painter, M.D. and Robert B. Osgood, M.D. Illustrated. Boston, D. C. Heath & Co. Publishers, 1909.

These are interesting studies of the diseases of the bones and joints, chiefly as they manifest themselves in adult life. The book is divided into three parts: The first, treating of tuberculosis of the bones and joints; the second- non-tuberculous diseases of the joints, and the third, a miscellaneous head including such conditions as lues, osteomyelitis, rachitis, etc.

Although many of these studies have already appeared in medical journals, sufficient that is new has been added to them to make the total a rather comprehensive and unified treatise on this subject. The significance of joint changes is regarded from a rather original point of view, especially when we compare the volume with such of the older works on this subject which have appeared in the past, going back to Dupuytren. It is indeed the clinical side on which these authors lay stress, although they admit that the pathologic data have also been more or less neglected in the past. That the work is above the average goes almost without saying, the very names of the writers are sufficient assurance of its great value. It should be read, not only by every orthopedic surgeon, but by every practitioner.

If there is any criticism, it is more in the selection of the topics rather than in the handling of those discussed. For example—it is difficult to understand by what rule, round shoulders and flat-foot are included under diseases of the joints when lateral curvature is not even mentioned. Another criticism is that a chapter devoted to the mehods of physical examination in joint diseases follows the introduction in Section I on

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tuberculosis of the bones and joints. It would seem that the former should come first and not in the section dealing with tuberculosis.

The volume is only fairly well bound. The paper is quite good and the cuts with the exception of some of the Roentgen pictures are reasonably good.

Thornton's Pocket Medical Formulary. New (9th) edition. Containing about 2,000 prescriptions, with indications for their use. In one leather-bound volume. Price, $1.50 net. Lea & Febiger, Publishers, Philadelphia and New York, 1909.

The author, who is eminently qualified to prepare such a work, has furnished a very satisfactory list of formulas suitable for various diseases. The diseases are arranged alphabetically to facilitate reference and the quantities in the prescriptions are given both in the ordinary and metric systems. In addition, are to be found a number of useful tables dealing with dosage, poisons and antidotes, incompatibilities, weights, measures, etc. Accompanying each prescription are to be found the indications which call for the use of the prescription. The work is attractively bound in soft leather and has already made a place for itself with the medical profession as is shown by this being the ninth edition.

ACKNOWLEDGMENTS.

Tuberculosis, A Preventable and Curable Disease. Modern Methods for the Solution of the Tuberculosis Problem, by S. Adolphus Knopf, M. D. Moffat, Yard & Company, New York, Publishers.

The Psychic Treatment of Nervous Disorders, Sixth Revised Edition. By Dr. Paul Dubois. Translated by Smith Ely Jelliffe and Wm. A. White. Funk & Wagnalls Co., New York.

Hygienic Laboratory—Bulletin No. 50. April, 1909. Further Studies upon the Phenomenon of Anaphylaxis, by M. J. Rosenau and John F. Anderson.

Diseases of the Bones and Joints, Clinical Studies by Joel W. Goldthwaite, Chas. F. Painter, Robt. B. Osgood. 1909. Illustrated. D. C. Heath & Co., Publishers, Boston, U. S. A.

Human Physiology—An Elementary Text Book of Anatomy, Physiology and Hygiene. By John W. Ritchie, Prof. of Biology, College of William and Mary, Virginia. Illustrated by Mary H. Wellman. World Book Company, Publishers.

The Practical Medicine Series, Volume V., Obstetrics. Edited by Joseph B. DeLee, A. M., M. D. Year Book Publishers, Chicago.

University of Colorado School of Medicine, Annual Announcement, Boulder, Colorado, June, 1909.

Albany Medical College, Register of Students, 1908-1909. Announcement for Session 1909-1910.

The Bulletin of the University of Nebraska, College of Medicine, Lincoln, Nebraska.

Reprints from:

Wm. H. Dukeman, M.D., Los Angeles, Cal.

Joseph E. Willetts, M.D., Pittsburg, Pa.

Joseph McFarland, M.D., Philadelphia, Pa.

Chas. B. Younger, M.D., Chicago, Ill.

C. H. Hughes, M.D., St. Louis, Mo.

Herbert C. DeV. Cornwell, M.D., New York City

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A Correction

A typographical error in punctuation in the article by Geo. W. Crile on page 352 of our June issue unfortunately changed the whole meaning of the paragraph. In para. II, line 6, a period should follow "procedure" and the period after "anesthesia" in the following line should have been omitted. The paragraph should thus read:

"In cases of acute pyogenic infections, the natural resistance or immunity of the patient seems to be materially impaired. This impairment is manifested in at least a goodly proportion of cases by a marked increase in the symptoms of infection, pulse rate, fever, and local signs. This often follows independent of the surgical procedure. Following nitrous oxid and oxygen anesthesia such exacerbation is rarely observed, granting of course, parallel conditions as to the type and stage of infection and the magnitude and technic of the operation performed."

Ohio State Board of Medical Registration and Examination

Examination Papers, June 8, 9 and 10, 1909

ANATOMY—1. Enumerate the bones forming the orbit. 2. Give the nerve supply of the stomach. 3. Name the ligaments of the knee-joint. 4. Describe the lungs, briefly. 5. Describe histologically the structure of the kidney. 6. Give the arteries arising from the thoracic aorta in order, beginning at the heart. 7. Give the composition of bones and classify them. 8. Name the structures forming the larynx. 9. Describe the gastrocnemius muscle. 10. Describe the femur.

PHYSIOLOGY—1. What are some of the properties of protoplasm? 2. Describe a neuron. 3. What is ameboid movement? 4. What are capillaries and what function do they perform? 5. What forces contribute to the flow of blood through the veins? 6. What is reflex action? 7. In what does digestion and nutrition consist? 8. What function is performed by hydrochloric acid in digestion? 9. What is the nutritive value of proteids? Name some articles of food containing a large proportion of proteid. 10. How should cow's milk be modified to resemble human milk?

CHEMISTRY—1. Milk. Give its composition. What impurities are most common and how would you detect them? 2. What is the chemical difference between acids having the termination ous and ic? What names are given to compounds of such acids? 3. What effect do alkalies have on gastric secretions? 4. Name and describe three general methods for the purification of water. 5. Explain where and how HCl is made in the human body. 6. How are urates formed in the system and how would you recognize them? 7. What is a calcium sulphide? Give its properties and uses. 8. What are the common properties of the mineral acids? 9. State the toxicological effect of carbolic acid and the therapeutic measures you would employ in a case of poisoning. 10. What is meant by physiological antidotes? Name some you consider physiological for strychnin poisoning.

MATERIA MEDICA AND THERAPEUTICS, (REGULAR)—1. Name and give the physical characteristics and properties of the official salts and preparations of mercury commonly employed. 2. Name the more important official preparations of digitalis. Under what conditions would you prescribe each? 3. Name the various serums whose place in medicine is recognized and give uses of each. Also state modes of administration. 4. In what form should the iodides be administered? With what are they incompatible? 5. Discuss the comparative value of ether and chloroform as general anesthetics. Give contraindications for each and treatment for untoward effects. 6. In what particular conditions would you advise suggestive therapeutics? State briefly how you would manage a case requiring this treatment. 7. What symptoms follow the continued use of cocain? How would you treat a cocain habitue? 8.

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What indications would suggest digitalis or the nitrite group in cardiovascular disease? 9. Define alkaloids, give their common characteristics and physical properties. 10. When would you use galvanism and when the faradic current?

MATERIA MEDICA AND THERAPEUTICS, (HOMEOPATHIC)—1. What is understood by the homeopathically indicated remedy? 2. What is understood by the polychrests? and give leading indications for two of them? 3. Compare symptomatically aconite and gelsemium. 4. Compare symptomatically arnica and hypericum. 5. Compare symptomatically pulsatilla and sepia in female diseases. 6. Give indications for three different remedies for la grippe. 7. Give indications for three different remedies for diarrhea. 8. Give general treatment for pneumonia, also naming three drugs with leading indications. 9. How would you prepare the first dilution of bryonia and the third of phosphorus? 10. When would you use galvanism and when the faradic current?

MATERIA MEDICA AND THERAPEUTICS, (ECLECTIC)—1. Name five hemostatics. 2. What is the source of santonin? Give use and dosage. 3. From what sources are the following specific medicines obtained? macrotys, chionanthus, nux and dioscorea. 4. What is meant by the selective action of a drug? Give examples. 5. Give indications, uses and dosage of collinsonia. 6. Give indications for use, chionanthus, eryngium, rhus tox, ipecac and belladonna. 7. Give two examples of the double action of drugs. 8. Name the constituents of comp. emetic powder, Dover's powder and neutralizing cordial. 9. Give names of four alteratives. Indications for exhibition of each. 10. When would you use galvanism and when the faradic current?

PRACTICE OF MEDICINE—1. Name four diseases in which a leukocyte count of over 25,000 is probably present. 2. Differentiate a large ovarian cyst from hydronephrosis of the right kidney. 3. Differential diagnosis of lead colic. 4. Name the cardinal symptoms of aortic stenosis. 5. How would you treat bronchopneumonia in a child? 6. Diagnose empyema. How treat it? 7. Differentiate gall-stones and appendicitis. 8. What is paranoia? 9. How would you manage a case of pulmonary tuberculosis in an ordinary family and home, with a view to the prevention of infection to others? 10. What is the difference between active and passive hyperemia.

DIAGNOSIS—1. State pathologic significance of an excessive respiratory action of the abdomen—abdominal respiration. 2. A persistently frequent pulse in persons without fever, what affections may it suggest? 3. What pathologic significance is attached to amenorrhea? 4. What results follow a back pressure on the superior cava? 5. State physical signs of pyloric stenosis.

SURGERY—1. Describe a compound, comminuted fracture and give general treatment for same. 2. Where are ununited fractures most commonly found? Give some of the causes and treatment. 3. Describe ileus and give treatment. 4. What injuries are common to the knee-joint? Give treatment for same. 5. Give diognostic symptoms and treatment of incipient coxalgia. 6. Describe symptoms and give treatment of flat foot. 7. Give diagnostic symptoms of tuberculous kidney. 8. Give technique of suprapubic prostatectomy. 9. Give symptoms and surgical treatment of renal calculi. 10. Describe surgical management of chronic cystitis.

OBSTETRICS—1. What factors make up the expulsive forces of labor? 2. What group of symptoms and what signs in particular would suggest to you pregnancy in a primipara at two months' gestation? 3. Give the measurements obtained by external pelvimetry, that would indicate a normal birth canal; what value can be placed upon such measurements? 4. What advantage, if any, to mother and child is gained by intermittent contractions of the uterus during labor? 5. In endeavoring, wholly by external examination, to determine the presentation and posi-

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tion of the fetus at about term, what anatomical guides are employed? 6. Describe the development of the bladder in embryo. 7. Make a differential diagnosis between a fibroid of the uterus and an ovarian cyst. 8. Give briefly the etiology and treatment of suppurative inflammation of a vulvovaginal gland. 9. Give the causation and general symptomatology of subinvolution of the uterus. 10. What treatment would you suggest for senile vaginitis?

DERMATOLOGY, SYPHILOLOGY AND DISEASES OF THE EYE, EAR, NOSE AND THROAT—1. Describe scabies. What is the cause of the disease, how is it treated? 2. What is dermatitis. Mention its varieties? 3. Describe psoriasis. 4. Are there any general characteristics to distinguish syphiloderma from other diseases of the skin? 5. What is syphilitic gumma? 6. How do you recognize astigmatism subjectively and objectively? 7. Define glaucoma, enumerate its varieties and mention principal symptoms. 8. Describe symptoms of catarrhal otitis media. 9. Describe mucous polypi of nasal cavities and give their causes. 10. Chronic laryngitis, symptoms and causes.

PATHOLOGY, BACTERIOLOGY AND HYGIENE—1. What is the microscopical appearance of the kidney during acute congestion? 2. Name the different kinds of tissue degeneration. 3. Name four possible sequelae which may follow peptic ulcer of the stomach. 4. Describe the microscopical appearance of a gumma. 5. What is the so-called "nutmeg" liver? How caused? 6. What is the morphology of Bacillus mallei? 7. What diseases are caused by the following bacteria? Shiga's bacillus; Koch-Weeks bacillus; Klebs-Loeffler bacillus; Diplococcus of Neisser; bacillus of Unna Ducrey. 8. What is a trap? What purpose does it serve in drains? 9. Describe the construction of a filter for river water to be used for drinking purposes by the people of a small city. 10. How many cubic feet of air is necessary for each patient in a general hospital?

Medical News

The new $50,000 hospital building of St. Ann's Infant Asylum and Maternity Hospital, Woodland Ave. and E. 35th St., is approaching completion and will be ready for occupancy in Octob[illegible].

The Lakeside Hospital is building a larg[illegible] addition to the nurses' residence.

John C. Darby, Captain and Assistant Surg[illegible] in the Fifth Regiment, O. N. G., and H. L. Davis, Captain, Battery [illegible], are attending a military camp of instruction at Sparta, Wis.

W. E. Gernhard has opened an office at 6[illegible]8 Rose Bldg. and will devote special attention to the administration of an[illegible]netics.

A. J. Bower of Greenville, Mich., and W. Phillips of Roswell, New Mexico, formerly on the resident staff of Lakeside Hospital, have been visiting in Cleveland recently.

John G. Colton, of this city, who [illegible] recently convicted by the Federal authorities and sentenced to a te[illegible] imprisonment in the Canton [illegible]rkhouse, has had his license revoked by the Ohio State Board.

The conjoint meeting of the Academies of Medicine of Cleveland and [illegible]ledo was held at Cedar Point, Thursday, July 15, the Cleveland delegation going down by a special train on the L. S. & M. S. The meeting proved a great success and was largely attended. The speaker of the day was John B. Murphy of Chicago who delivered an excellent address upon Diseases of Bones and Joints and their Importance to the General Surgeon and General Practitioner. Unfortunately a heavy storm of rain in the late afternoon interfered wtth outdoor amusements.

The trustees of the Huron Road Hospital, who recently announced the appointment of several regular physicians on the visiting staff of the hospital, have been restrained by a permanent injunction, issued recently

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by Judge Neff, from employing other than homeopathic physicians upon the hospital staff. The attorneys for the trustees have given notice of appeal from this decision.

The Lakeside Hospital Medical Society met Wednesday, June 30, 1909. The program was as follows: 1. Presentation of Two Cases of Bilateral Athetosis, E. F. Cushing and J. Phillips. 2. Report of Four Cases of Iliac Adenitis, H. G. Sloan. 3. Presentation of a Case of Chorea, C. Wyckoff. 4. Presentation of a Case of Bilateral Hemorrhagic Pleurisy, and a Case of Syphilis of the Larynx, L. A. Pomeroy. 5. Report of a Case of Formaldehyde Poisoning, J. MacLachlan.

St. Alexis Hospital celebrated the twenty-fifth anniversary of the founding of the hospital on July 15, 16 and 17. A lawn fete, the proceeds of which amounted to several thousand dollars, was held on these days. Thursday evening, July 15, a large banquet was held at which members of the staff, ex-house officers and others connected with the hospital were present.

Every graduate of the class of '09 of the Cleveland College of Physicians and Surgeons and of the Western Reserve Medical College, who took the State Board examination in June, 1909, passed. The names are as follows: From the Cleveland College of Physicians and Surgeons: B. B. Buell, H. B. Corlett, F. V. Dunderman, Ada Ford, W. T. Gudgel, R. S. Hallock, W. A. Landgrebe, W. G. Mussun, F. A. Rice, F. E. Sexton, E. K. Zaworski, O. F. Zimmer, E. C. Davis, H. L. McNeely. From the Western Reserve Medical College: E. R. Alexander, J. Anderson, A. F. Basinger, H. A. Berkes, R. B. Bretz, W. D. Bretz, H. A. Budd, C. H. Campbell, W. D. Cleland, H. N. Cole, L. O. Davenport, E. A. Duncan, E. P. Edwards, T. R. Kenderdell, E. E. Kepner, O. H. Love, F. E. McElree, R. V. Myers, O. B. Norman, J. D. Osmond, V. C. Rowland, H. K. Shawan, H. A. Thomas, A. C. Tidd.

The Ashtabula County Medical Society held the regular monthly meeting at Ashtabula Tuesday, July 6, 1909. F. S. Clarke of Cleveland read a very instructive paper on the Management of Occipito-posterior Presentations.

W. R. Flower and wife of Ashtabula returned July 12 from an extended visit to Seattle, Washington.

Clyde Roller, recently graduated from the University of Michigan, has received the appointment as interne to the Ashtabula General Hospital.

Conneaut has had an epidemic of pertussis of late.

W. B. Hubbell, O. G. Maynard and C. H. Cushing of Elyria attended the meeting of the American Medical Association at Atlantic City in June.

Geo. Gill, W. B. Hubbell, O. T. Maynard of Elyria attended the conjoint meeting of the Academies of Medicine of Cleveland and Toledo at Cedar Point, July 16, 1909.

F. M. Freeman, formerly on the resident staff of St. Vincent's Hospital, Toledo, will act as assistant to J. H. Jacobson, Toledo, for the year beginning July 1, 1909.

The Graduation Exercises of the St. Vincent's Hospital, Toledo, were held at St. Anthony's Orphanage the evening of June 24, there being a class of 14. Thomas Hubbard delivered an address entitled The Nurse as a Factor in the Practise of Legitimate Psychotherapy in the Sickroom.

The Annual Midsummer Festival of the St. Vincent's Hospital Society was held on the hospital grounds July 1, 2 and 3.

Joseph Price of Philadelphia gave a clinic at St. Vincent's Hospital, Toledo, the morning of July 13, 1909.

Peter Donnelly, Toledo, is recovering from a fracture of a metacarpal bone, which he received as the result of a fall.

The Robinwood Hospital Training School, Toledo, had its commencement exercises in Collingwood Hall, June 30. C. W. Huntington gave the address to the class of three.

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The District Nurses' Association of Toledo has closed a successful whirlwind campaign for funds.

G. P. Whitwham, Toledo, formerly an interne at St. Alexis Hospital of Cleveland, was in Cleveland to participate in the celebration of the twenty-fifth anniversary of the hospital.

The Northern Tristate Medical Association met in Toledo, July 13, 1909, at the Y. M. C. A. Auditorium. The program was as follows: To What Extent Does Thought Influence Diseases of the Mind and Body, Lewis Miller, Toledo. Chronic Intestinal Intoxication, Hugh M. Miller, South Bend, Ind. The Role the Neisserian Coccus Plays in Man, Concerning Childless Marriages, Chas. E. Barnett, Fort Wayne, Ind. The Interpretation of Symptomatic Jaundice, C. N. Smith, Toledo. A Case of Appendicitis of Twenty Years' Standing, J. H. Carstens, Detroit, Mich. Typho-Bacillosis, J. H. H. Upham, Columbus, Ohio. Anesthesia in Lymphatism, K. K. Wheelock, Fort Wayne, Ind. Edward Alanson, a Forgotten Pioneer Who Established Correct Methods of Wound Treatment, C. B. G. deNancrede, Ann Arbor, Mich. Why Avoid Drainage, Pus and Plastic?, Joseph Price, Philadelphia. After the dinner, which was given by the Academy of Medicine of Toledo and Lucas County to the visiting members of the association at the Boody House, Victor C. Vaughn of Ann Arbor, Mich., delivered a splendid address on The Evolution of the Superman. At the close of the meeting, the following officers were elected: President, C. B. G. deNancrede; Vice President, James A. Duncan, Toledo; Secretary, George W. Spohn, Elkhart, Ind; Treasurer, John Weitz, Montpelier, Ind.

The Tuscarawas County Medical Society met in New Philadelphia, Tuesday, July 6, 1909. The program was as follows: Otitis Media, R. B. Smith, Columbus, Ohio; Diagnosis and Management of a Few of the Principal Abdominal Diseases, D. W. Shumaker, Canal Dover, Ohio. The discussion was opened by B. C. Hendershot and J. M. Smith. Since January, 1909, this society has held monthly meetings. This interest grew out of the organization of the Union Academy of Medicine of New Philadelphia and Canal Dover, which meets weekly and substantially follows the course of study laid out by the A. M. A.

The Erie County Medical Society met at the Court House, Sandusky, Ohio, July 28, 1909. The following program was presented: Malaria Poisoning, Etiology, Diagnosis and Treatment, S. Gorsuch, Castalia, Ohio. The Chill, Its Significance from a Medical and Surgical Standpoint, P. F. Southwick, Sandusky, Ohio. Hon. W. E. Guerin, who was to address the society, was unable to be present.

G. H. Boehmer, who has been in active practise in Sandusky, Ohio, for the past 11 years, will sail, with Mrs. Boehmer, on Aug. 5, 1909, from New York for a year or more of postgraduate work in Vienna.

P. F. Southwick has recently been appointed Assistant Surgeon of the U. S. Public Health and Marine Hospital Service for the port of Sandusky, Ohio, vacated by the sudden death of A. F. Cook. Dr Southwick has moved his office into the I. O. O. F. building, the rooms having been formally occupied by Dr Cook.

Committees of three from the Seneca, Erie, Sandusky and Huron County Medical Societies have been appointed to meet with the respective county commissioners to consider the establishment of a tuberculosis hospital located at some available point (probably Bellevue) for these counties. It is hoped that this much needed hospital will soon be erected.

The Muskingum County Medical Society held its regular monthly meeting on Wednesday evening, July 14, 1909. Two very excellent papers were presented and brought forth considerable discussion. The program was as follows: The Early Diagnosis of Cancer of the Pelvic Organs, H. T. Sutton. Tonsils and Adenoids, H. R. Geyer. At the August meeting the President of the State Association, W. H. Snyder, and J. H. Jacobson of Toledo will present papers. A large attendance and an interesting meeting is anticipated.

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F. G. Mitchell of Marietta, C. A. Craig of Ava, and J. R. McDowell of Zanesville were appointed by Representative Joyce as medical examiners of candidates for the appointment of a West Point cadet from that district.

Edmund R. Brush, Starling, Ohio Medical College, '09, having passed the State Board examination, has located with his father, E. C. Brush of Zanesville.

Major J. H. Wright, New Lexington, Captain F. G. Mitchell, Marietta, First Lieutenant J. R. McDowell, Zanesville, and First Lieutenant C. G. Axline, Lancaster, all surgeons of the Seventh Infantry O. N. G., and Major C. E. Drake of Hospital Section No. 2, are attending the camp of the Second Brigade O. N. G., being held at Camp Perry, from July 26 to Aug. 2.

W. A. Melick of Zanesville has been attending clinics at the Mayo's Hospital at Rochester, Minn..

The Lorain County Medical Society has made preliminary arrangements for an outing at Avon Beach Park, early in September, to which members of the Academy of Medicine of Cleveland will be invited.

The State Medical Board has revoked the license of Jas. M. Ernst of Alliance and postponed action in the case of Jas. N. Nelson of Alliance who produced good evidence in his defense. Both physicians were charged with supplying cocain to habitues.

The Stark County Medical Society met at Canton, Tuesday, July 20, 1909. The program was as follows: Dysmenorrhea, E. J. March, Canton, Ohio. Discussion opened by Chas. S. Hoover, Alliance, Ohio. Diseases of the Gall-Bladder and Treatment, H. M. Schuffell, Canton, Ohio. Discussion opened by N. W. Culbertson, Massillon, Ohio. Ophthalmia Neonatorum, C. A. Crane, Canton, Ohio. Discussion opened by P. L. King, Alliance, Ohio.

The prohibition views of the physicians of Stark County were shown by a straw vote of the physicians of Canton as to whether the sale of intoxicating liquors as a beverage should or should not be prohibited in Stark County. The vote showed 75% in favor of the former. A similar vote in Alliance showed 22 out of 24 physicians on the dry side of the question.

The annual meeting of the Medical Society of the Missouri Valley will be held at Council Bluffs, Iowa, on Thursday and Friday, September 9 and 10. Three interesting addresses will be given on the evening of the first day, as follows: President's address, C. B. Harding, Kansas City; address in Medicine, Alfred C. Croftan; and Jno. E. Summers will deliver a timely address on Cancer a Constitutional Disease; Its Rational Treatment. The last two above-named addresses will be open for discussion. The secretary, Chas. Wood Fassett, will be pleased to send program and full information to those desiring same.

A $7,000.00 practise in a pretty and up-to-date New England town is for sale by a physician who desires to give up general work in order to specialize. Details may be obtained at this office.

Deaths.

Harry Norvill Curtis, Marietta, Ohio, died June 7, aged 56.
Gettus E. Starner, Dunkirk, Ohio, died June 7, aged 52.
Lovina A. Thorpe, Cleveland, Ohio, died April 23.
Ogden D. Phillips, Cleveland, Ohio, died June 12, aged 73.
Thomas Cosgrove, Toledo, died June 11, aged 75.
Samuel Biddell Tomlinson, Cincinnati, Ohio, died June 25, aged 77.
Abraham H. Iler, Blue Ball, Ohio, died June 23, aged 88.
James Griffin Coleman, Chagrin Falls, Ohio, died May 31, aged 90.
Erastus Coffin, Cincinnati, Ohio, died June 26, aged 68.
Frank Hodge, Hudson, Ohio, died July 14, aged 76.
Richard C. S. Reed, Cincinnati, Ohio, died July 8, aged 84.

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The Cleveland Medical Journal

VOL VIII SEPTEMBER, 1909 No 9

Asthenia Universalis Congenita.

A New Constitutional Disease

By PROFESOR B. STILLER, Budapest.

In the course of my studies—extending over many years—on the subject of enteroptosis I have arrived, step by step, at the disclosure of a constitutional disease, which has been hitherto unknown, i. e., the *asthenia universalis congenita.* This is by far the most frequent of all the maladies springing from hereditary predisposition, is in more or less close connection with many other complaints, throws an explanatory light upon wide clinical spheres, and is appointed to form the cornerstone of a future constitutional pathology.

The predisposition shows itself even in the child in the atonic habitus—thin bone structure, long flat and sunken thorax, sharply sloping ribs and wide intercostal spaces. The angulus epigastricus, upper and lower chest apertures, as well as the pelvis, are narrow. The cranium outweighs by far the face, owing to the delicate and pointed lower jaw, the zygomatic bones and the nose being small in size also.

The congenital stigma on the atonic thorax, which I have found and named *costa decima fluctuans,* is specially worthy of notice. It is a more or less pronounced defect of the tenth costal cartilage, owing to which the end of the tenth rib, in normal state firmly fixed, appears free and movable. The indicatory importance of this stigma is, according to my experience in the many thousand cases which have come under my notice, so great, that we may generally determine the stage of the disease revealed by the stigma, by observing the extent of the defect and the mobility of this rib. The development of the atonic thorax is usually parallel with that of the costal stigma.

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But in cases in which the habitus is slightly or not at all pronounced, the existing stigma alone gives us the certain indication, that we have to do with an asthenic constitution. In more pronounced cases the end of the ninth rib is visibly loosened too, while the eleventh and twelfth ribs, normally free, present their mobility in a higher degree than usual. Indeed in very rare cases we may observe, that the twelfth rib is entirely missing. All these forms and degrees of the costal stigma denote a loosening of the costal belt, and are to be regarded as one of the features of the atonic thorax. However, the whole of the symptoms here described should not be considered as the essence of the predisposition, but as indications of a general inner asthenic constitution, which manifests itself in the atony of all tissues and in a weakness affecting almost all the vegetative functions of life. All asthenic patients are anemic, their skin being thin and pale, the panniculus scanty, the muscular system lax and underdeveloped. The heart and blood-vessels show a certain degree of hypoplasia and the lungs are large and slack.

This congenital, mostly inherited, asthenic predisposition tends to lead to a chain of disorders, which, as a rule, show themselves first after pubescence, and together with the congenital habitus form the asthenic disease. These disorders are manifold; but among them appear most often four large groups, i. e., enteroptosis, nervous dyspepsia, neurasthenia and dystrophia.

If an author could collect thirty-six varying etiologic explanations of enteroptosis from medical literature, the theory of asthenia puts an end to this huge confusion of opinions; for the pathologic explanation of ptosis lies simply in that general atony of all tissues, which is already indicated in the dispositional stage by the slack ptotic thorax. In asthenic patients we may notice all those factors injured, which serve—*de norma*—to hold the viscera in place. Not only are the ligaments relaxed, but the tissues of the entire intestinal canal have lost tone, causing the organs to sink downwards. As a result the mutual gravitation of the organs becomes greater, while the hydrostatic pressure in a downward and forward direction increases and does not find the necessary counterresistance in the relaxed abdominal wall. This downward pressure is all the greater, because the atonic and but slightly contractile lungs cannot, as in the case of a strongly built thorax, hold the viscera

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firmly in the vault of the diaphragm by means of their attractive power.

To these general factors are also added special ones for the kidney and stomach which cause these organs to be those most predisposed of ptosis. For the kidney of asthenic patients we find shallowness of its nest, a deficiency of adipose tissue in the capsula adiposa, and hepatic pressure; for the stomach, a gradual stretching of the atonic walls caused by ingesta. Corsets, tight belts, repeated childbirth and other mechanical momenta are only chance and accessory causes, but this also in my experience is true only in a small percent of cases. The frequently observed ptosis in men, girls, sterile women and in children speaks against the accepted universal validity of these causes. Besides the constitutional enteroptosis, however, there exists a purely mechanical form in which repeated childbirths are the etiologic agents. This is the *abdomen pendens,* which often occurs in healthy, well-nourished women and has nothing to do with asthenia. This form, however, is rare compared with the great frequency of the constitutional variety.

Until now all the many dyspeptic and nervous complaints, as well as the conspicuous trophic disturbances in cases of splanchnoptosis, have been attributed directly to the anatomic misplacement of the organs. Glenard, the valued originator of the theory of enteroptosis, has also fallen into this error; but observation teaches us better. We see a number of youthful individuals, recognizable by their habitus and costal stigma, in whom no ptosis is yet to be traced, but who, nevertheless, already present the whole misery of enteroptosis. On the other hand, in cases of the fully developed disease, we may occasionally observe such a complete cessation of all the subjective disorders, that one could believe we were looking at a perfectly healthy individual. And lastly, we meet with cases of enteroptosis, in which the patients, after a life of suffering, shake off all these disorders, although the old ptosis still exists; and even gain something of embonpoint, for which they have so long hoped and striven in vain.

Cases of *abdomen pendens,* which are met with in the healthiest women, exhibit displacements—also of the liver and even of the spleen—such as scarcely ever occur in cases of asthenia; for the excessive expansion and complete slackening of the abdominal walls has here reached a degree which is never

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attained in asthenia. And in spite of these many and highly developed ptoses, the dyspeptic-neurasthenic symptoms of asthenia are entirely absent. The same is to be said of great scrotal herniae, in which an almost complete eventration of the intestines occurs without the subjective disturbances of enteroptosis being present. All these instances show that it is not anatomic displacement, as for instance the floating kidney, which is responsible for the sufferings of asthenic patients, but principally the neuropathic disposition of the constitutional malady. Gynecologists have lately come to the same conclusion with regard to the sinkings and displacements of the uterus, which are nothing else than asthenic ptoses.

With regard to the dyspeptic symptoms which are so pronounced in cases of asthenia, my experience in treating over 20,000 patients, has convinced me, that this form of disorder is strictly that which we have until now understood under nervous dyspepsia. Nearly all nervous dyspeptic subjects present indeed the atonic habitus with its costal stigma, nearly all exhibit enteroptosis; added to this the stomach generally shows marked atony, of which the clinical sign is splashing and the morphological expression is gastroptosis. This peristaltic atony or relaxation which attacks only the fundus, is not yet motor insufficiency, but only facultative insufficiency, i. e., it inclines exceedingly to the former, which then appears, when the relaxation becomes at times so excessive that the muscular *portio pylori* is also attacked, causing an injury to its expulsive force; then we have motor impotence or peristaltic atony. Should this atony of the *portio pylori* become permanent, it develops into atonic ectasia. As a result of the intestinal atony we find habitual *constipation* as an almost constant disturbance in cases of asthenia.

The disturbances in the gastric secretions are also peculiar. Whilst each of the organic diseases of the stomach shows its specific secretive disturbance:—carcinoma and gastritis: anacidity or hyperacidity; ulcus: hyperacidity; aglandulia: achylia—we find in cases of asthenia or nervous dyspepsia all kinds of variations from achylia and anacidity to hyperacidity and on to hypersecretion. More than this; we find not only various disturbances in the particular cases, but sometimes in one patient a rapid change in the rate of the acid-secretion, i. e., heterochylia. These changes are analogs to the fluctuations in the general sensibility,

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the variations in mood and in dyspepsia, and cast a light upon the nervous basis of these secretory disturbances. The most frequent variation is, however, the hyperacidity.

We have herewith assigned to the enteroptosis and nervous dyspepsia their natural nosological place as accompanying symptoms of asthenia, and it is henceforth not permissible to consider the movable kidney, the gastroptosis and nervous dyspepsia as special maladies. This also applies to motor insufficiency, achylia, hyperacidity and hypersecretion, which wrongly appear under special headings in medical handbooks, as *morbi sui generis.*

Neurasthenia is an integral element in asthenia. Nay, we may go further! Just as the atonic habitus is the anatomic expression of asthenia, the constitutional hyperesthesia and irritability of the sensitive centers form its physiologico-psychic feature. Let us ask, whether the nervous debility met with in asthenia, differs from other forms of neurasthenia. Certainly not essentially. It is the same psychic oversusceptibility, the same depression of spirits, the same inadequate reaction on the least irritation: only the coloring is more subdued and less striking, than in those other forms which I shall class together as irritative. This is, however, only a gradual distinction; the difference goes deeper. We come across a great many neurasthenic subjects, plagued by a pack of all sorts of algiae and phobiae, afflicted with dyspnea, palpitations, feelings of faintness and with sexual aberrations, who yet look pictures of health, present to our view a herculean body, and in spite of all their complaints, sufferings and tears possess an excellent appetite. The contrast between the moral misery and the sturdy figure must always strike the observer.

Let us now compare this picture with that of the asthenic patient, with his insignificant figure, his pallor and leanness, his delicate appetite, dyspeptic troubles and quiet depression of spirits. Bouveret has already noticed these two types of neurasthenic patients. But this is not all; we see this peculiar species of neurasthenia clearly recognizable by its special habitus and stigma, by the relaxed splashing stomach, by the peculiar motor and secretory disturbances and by ptoses of the abdominal organs.

Thus we see these two externally delineated types of neurasthenics, by the light of the doctrine of asthenia, become

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anatomically and physiologically two separate classes of neurasthenia.

The cause of this prevailing difference I find principally in the participation of the abdominal sympathetic in the constitutional nervous disorder. Whoever observes many cases of asthenia will be surprised to notice, how often quite slight causes may produce important and even serious nutritive disturbances. Indeed I have seen robust, powerfully-framed individuals, in whom the tendency to asthenia was only betrayed by the costal stigma, fall into a state of violent dyspepsia and neurasthenia, as the result of relatively slight intercurrent ailments, and lose 20 to 25 kilograms in weight within a few weeks. In such cases we have examples of congenitally tainted individuals who, thanks to the favoring of inward and outward circumstances, have so far been able to maintain their state of health at its best, and then suddenly fall a prey to their disposition, owing to a relatively slight chance cause. As an explanation of such conditions, which deceptively suggest a serious organic malady, neither the nervous dyspepsia, atony and ptosis of the stomach, nor the disturbances in the gastric secretion are by far sufficient. We cannot refuse to affirm, that also the other organs of digestion, nay the whole assimilatory apparatus, are just as much injured as the stomach itself. All this forces us to the assumption, that the whole abdominal sympathetic, as the source of all vegetative functions, plays a chief part in the asthenic constitutional weakness. This is also the reason for the pathognostic habitual dystrophia in nearly all asthenic cases. From this also the peculiar feature of asthenic neurasthenia can be explained, as springing from the preponderance of splanchnic irritations and their influence on the general sensation. Our class of neurasthenia may therefore be suitably designated as sympathetic or vegetative neurasthenia.

In addition to the nervous-depressive character of the asthenic patient we will also draw his psychic physiognomy. This, in contrast to the somatic, exhibits no sign of degeneration. We frequently observe in these patients rather a quick intellect, often considerable receptive talent, but rarely creative power and yet more rarely decided energy of will; imagination and impressionability prevail, and, as a result of these, strong sexual instincts. We find among them poets, scholars and artists; I have

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very seldom met within their ranks really intellectually-restricted, stupid and dull persons.

Observations of many years have confirmed my opinion, that the asthenic predisposition is not only the producing soil of all the purely asthenic disorders here described, but that it also involves the disposition to other diseases. Its genetic relation to phthisis is most striking. No unprejudiced observer now doubts that Koch's bacillus is not the only etiologic factor in this disease, but that the congenital, hereditary tendency is equally important. This tendency announces itself in most cases in the phthisic or paralytic habitus. But this is quite identical with the asthenic habitus; for the phthisic thorax bears not only all the features of the asthenic one, but—as was up to now not known—the costal stigma too. This habitus is in its true nature the index of the asthenic constitution only, and merely denotes secondarily the predisposition to phthisis. For all consumptive patients, recognizable by their habitus, are asthenic, not only in their bodily, but also in their psychic physiognomy. With nearly all not only the costal stigma is to be seen but, more or less, all the other phenomena of asthenia—enteroptosis, dyspepsia, neurasthenia and the inclination to disproportionate trophic disturbances; but only a small percent of asthenic subjects is tuberculous. Asthenia is therefore the wider conception which embraces the predisposition to phthisis.

The dyspepsia proved by authors to accompany phthisis in 70—90% of the cases, is nothing other than the legitimate asthenic or nervous dyspepsia; and the so-called pretuberculous dyspepsia, which has given rise to so much controversy, is nothing else than a grave asthenic digestive and nutritive disturbance, which favors the outbreak of severe phthisis. For Koch's bacillus is the parasite of all inferior, mostly of the atonic constitution. And when celebrated authorities as Louis, Hanot, Sec, Cohnheim, Henle, declare that the phthisic habitus is not congenital, but only the product of the emaciating malady, or, in other words, that there is no habitus phthisicus without phthisis, this assertion is refuted once for all by the doctrine of asthenia.

Still other diseases spring, however, from this soil. Sufferers from chlorosis are usually asthenic with all the attributes of the habitus, with enteroptosis, dyspepsia and nervous debility. In the same way we shall find upon careful observation, that the gastric ulcer most often belongs to the asthenic constitution; for

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any anatomic lesion of the mucous membrane of the stomach develops by the asthenic hyperacidity or hypersecretion into a chronic peptic ulcer, all the more easily, because here also the tissues possess but little power of resistance. Orthostatic albuminuria as a constitutional functional defect of the kidney, occurs also most frequently in asthenic subjects, and according to my observation, I can assert the same of cryptorchis and infantile uterus.

On the other hand asthenia presents a certain contrarelation to some maladies, as for instance to degenerative cardiac and vascular diseases, to diabetes, obesity, gout, chronic rheumatism and chronic nephritis. All these complaints are met with relatively seldom in asthenic subjects, having a nearer relationship to the constitution which expresses itself in the contrary or apoplectic habitus.

Asthenia is the most important of all constitutional diseases. It is not only by far the most frequent, but involves also the most universal pathologic dispositions. Here the constitutional anomaly does not limit itself to a single organ or particular function, as in all other maladies arising from congenital predispositions, but affects nearly all the organs and tissues of the body. It is further distinguished from all others in that it possesses a particular habitus and stigma as indicators of the tendency, and also the surpassing peculiarity, that these anatomic signs in the bodily structure disclose the facultative disease premonitorily in childhood, and so make prophylactic constitutional therapeutics possible. And, lastly, the asthenic predisposition is the soil not only for the disorders of asthenic natures, but also for a number of other grave ailments; while it presents an antagonistic attitude to certain other diseases.

To those desiring to learn more of the *morbus asthenicus*, of the way in which I arrived at the construction of its theory, and of the many antagonists I met with in my way, I recommend my book entitled "Die asthenische Konstitutionskrankheit." (Euke, Stuttgart, 1907.)

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Intestinal Hemorrhage in Typhoid Fever.

By JOHN H. LOWMAN.

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The first illuminating evidence of typhoid fever is sometimes an intestinal hemorrhage.

A cook, pursuing her usual avocation, suddenly has a bloody stool; a laundress has, while at her work, an extensive hemorrhage from the bowels. In both instances the illness continues as typhoid fever. In the last autumnal revival of enteric fever I observed three cases of hemorrhage in which the dominant symptoms were those of influenza; sudden onset, chills, general myalgic pains, bronchitis and pulmonary congestion. The hemorrhage came as a sudden pronouncement, for typhoid fever was not known to exist. In one of these instances the Widal reaction was negative two days before the hemorrhage, in the others it had not been sought.

Early intestinal hemorrhage in typhoid is more common than is generally reputed, and in walking cases it is not rare. The usual time of recorded hemorrhages has been during the third week but it occurs often during the second week and occasionally in the first. Thus an intestinal bleeding, even after a few days of fever, must be considered with suspicion and not disregarded as an accidental affair.

It has been impossible to study sufficiently the state of the bowels during the first two weeks of fever, but it can be accepted that sloughing of the necrotic surface and consequent opening of the vessels does not take place until later; hence the early hemorrhages must be explained in some other way. There is first a general hyperemia of the ileum with marked congestion of the patches opposite the attachment of the mesentery. This congestion has been plainly seen during the first few days of the fever when early involvement of the appendix demanded a laparotomy and consequent exposure of the bowel to inspection. In one instance of that character when I was present the congestion of the ileum was marked at what was estimated to be the fifth day of the disease. Then follows the medullary infiltration of the Peyer's patches and solitary follicles, when the inflamed surfaces are thickened and swollen. The tissues are then raised,

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villous, spongy, friable and frequently infiltrated with blood so that their color is dark red and even black. At this time hemorrhage can and does occur. If the involved patches are numerous the bleeding can be very extensive although it is a capillary and oozing hemorrhage. Early intestinal hemorrhage in typhoid fever does not then result from open vessels or a loosened thrombus but from the congested or hemorrhagically infiltrated lymphatic tissues. Such being the state of the bowels early in the disease, hemorrhage might be anticipated in ambulatory cases, and especially so when a diet regimen had not been carefully followed. Effort, a jar or blow, or marked dietary indiscretion would almost be expected to produce the dreaded accident.

After the infiltration stage which continues well into the second week and even longer, for the evolution of the inflamed patches is successive, there follows the period of anemic necrosis and sloughing when the blood-vessels are easily broken and the bleeding is more frequent and profuse. The hemorrhage continues from non-closure of the vessels, imperfect thrombotic formation and consequent facile reopening of the bleeding channels.

Late hemorrhage even during convalescence, when progressive ulceration has ceased, probably results from reopening of the vessels by expulsion of thrombi, because of the increased vigor of the circulation or even from spontaneous loosening of thrombi, when it partakes of the nature of a secondary hemorrhage.

Late in especially severe cases there is occasionally seen a constant oozing of blood that keeps the stool black for days. The patient grows paler and even develops delirium for the first time, apparently from exhaustion. This is sometimes a renewed capillary hemorrhage and sometimes the result of a veritable hemorrhagic diathesis such as is frequently observed in typhus fever. The hemorrhagic diathesis, fortunately of rare occurrence in typhoid fever, may be extensive enough to cause surface bleeding in many places. I saw one case in which the gums, nose, stomach and kidneys bled as well as the bowels. In this instance the vessels were so feeble that the perforating arteries of the palate oozed; one could see the blood accumulate at the roof of the mouth and fall in drops upon the tongue.

The hemorrhagic diathesis is the probable cause of some of the extensive intestinal hemorrhages. When the coagulation time is especially slow, and a tendency to bleeding is noticed elsewhere

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than from the bowels, and ecchymoses are common, the presence of an acquired hemorrhagic diathesis is probable, and its incidence should be seriously considered as the eventuality is a fatal issue.

In 1218 consecutive cases of typhoid fever in Lakeside Hospital there have been 74 cases of intestinal hemorrhage, or 6.07%; 56 of them were men and 18 women. In some years the hemorrhagic cases were more numerous than in others, but this percentage of 6.07, based as it is on a series of cases running over 11 years, doubtless represents the proportionate prevalence of hemorrhage in typhoid fever in this city.

It corresponds closely with reports on this accident elsewhere; thus 4.6%, 4.65%, 5.3%, 6%, 6.3%, 7.3% are figures that are given. In the Johns Hopkins Hospital the figure is 6% while 7% is given in Osler's "System."

Men are more liable to hemorrhage than women but our figures do not represent the exact proportion because the number of men treated was much larger than the number of women, and the proportions have not been accurately calculated. However, it is highly probable that the tendency to hemorrhage is greater in men. There may be other reasons for this than sex alone. The social condition of many of the men is inferior, some are tramps, their physical condition is bad due to alcoholic habits and exposure. Moreover, women are more easily managed; especially, to mention one matter, in the taking of large quantities of water. It is a common belief in the hospital that clinical toxemia is of less frequent occurrence in the women's wards than in the men's. This variant is ascribed to the docility of the women in taking water abundantly.

The Brand system of full baths, modified only as to the temperature, is in common use. All cases are bathed every three hours for 15 minutes day and night in a tub with water ranging from 85° to 95° Fahr., when the temperature of the patient is at 102.5° Fahr.

Although the mortality has been low, the last two years for example less than 2%, some years however being 9%, the incidence of hemorrhage has not been particularly influenced. Certain epidemics in which the expectant treatment has been followed have shown about the same proportion of hemorrhage. Although the water treatment has reduced to 4.15%, the general mortality of 25%, which I showed to be the death rate in Charity Hospital here 25 years ago, it apparently cannot be demonstrated

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that the tendency to hemorrhage has diminished to any marked degree.

The improvement in the management of typhoid fever has been in the control of the toxemia. In 51 deaths in the wards of the hospital during the past 11 years, 28 were from perforation of the bowels, 11 from hemorrhage and perforation, nine from hemorrhage followed by toxemia, and one from hemorrhage direct. The purely toxic typhoid of a former era is rarely seen today.

The liability to hemorrhage increases with the age of the patient.

In this series hemorrhage occurred:

Between 1 and 10 years in 1 case.
Between 11 and 20 years in 16 cases, or 21.6%.
Between 21 and 30 years in 34 cases, or 45.9%.
Between 31 and 40 years in 19 cases, or 25.6%.
Between 41 and 50 years in 3 cases.
Between 50 and 60 years in 1 case.

This table does not clearly show the proportion because the cases are not classified by ages. There are a much larger number of persons admitted between the ages of 21 and 30 than in any other decade and consequently there would be a larger number of hemorrhages in that period.

Hemorrhage is, however, less likely to occur in childhood; in this series there was but one case. There was but one instance occurring in a patient over 50 years. This is doubtless due to the fact that the intestinal lesions are less prominent in childhood and old age than in adult life.

The incidence of hemorrhage in childhood is ordinarily placed at 1%. In our series of 83 (adding nine to the original series of 74), it would be 1.2%.

The effect of the hemorrhage is greater upon men in early manhood than at other times and greater than the effect upon women. They grow more ill, more toxic, more delirious and are more apt to die.

Date of hemorrhage: I have already referred to early hemorrhages. They are more frequent than is usually reputed, but in this series they were most frequent between the eleventh and

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twentieth day, from the time of onset of the disease. They occurred as follows:

Between the first and tenth day, 7 cases, or 9%.
Between the eleventh and twentieth day, 34 cases, or 45.9%.
Between the twenty-first and thirtieth day, 24 cases, or 32%.
On the thirty-sixth day, 1 case.
On the fortieth day, 1 case.
On the forty-second day, 1 case.
Indeterminate, 5 cases.

Those under the tenth day were probably due to hemorrhagic infiltration of the Peyer's patches and were, as a rule, less abundant than those occurring later. One sees sometimes one large early hemorrhage and no more, while after the fifteenth and twentieth days one hemorrhage is apt to be followed by others. They are then presumably due to lifting of the slough, the freeing of the thrombus and the eventual open vessels.

That hemorrhage occurs at the forty-second day of the disease shows that the patient is never free from the danger of bleeding, and since hemorrhages have been reported at the sixth day one sees that the accident is possible at almost any time during the illness.

There were two instances of hemorrhage during the relapse. The illness is usually less severe during the relapse than during the primary attack; the intestinal lesions are less pronounced and the fever less high. Hemorrhage would naturally be a less frequent complication. The fact that hemorrhage occurred but twice in this series bears out the belief that a relapse is apt to be of a milder type than the original attack. Curshman reports but four instances of hemorrhage during the relapse among a large number of cases observed.

It is impossible to determine the amount of blood lost. It is described as small clots, bloody stools, four to ten ounces, or large quantities. Sixteen ounces is not an exaggeration in massive hemorrhages. The number of hemorrhages imputed to a single patient is also subject to suspicion. One hemorrhage may be measured by several stools. The higher the bleeding point the slower the blood passes away from the body. The peristalsis is notoriously slow in typhoid fever and the blood remains even days in the lumen of the intestine and after death blood is still found there. The clinical symptoms are not always clearly enough defined to fix the hour of the accident and often the visible evidence of the blood is the first evidence, so that when in our records 10 bloody stools are recorded it can not mean of

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course 10 hemorrhages. Sometimes only a few black clots are seen. Sometimes one, two or three large bloody stools come near together, in which case there has been probably but one hemorrhage. When, however, as in several cases, the hemorrhage continued 7, 8, 9 and 10 days there had probably been several hemorrhages. The smallest hemorrhages must be respected and appropriate precautions taken. In one case a few black clots that were considered of but slight importance were followed in three days by a massive hemorrhage that blanched the face of the patient, lowered his temperature, increased and enfeebled the pulse and threw him temporarily into a state of shock.

The immediate cause of hemorrhage is not ordinarily apparent. It comes suddenly, unexpectedly, like a thunderbolt out of a clear sky, and immediately in massive hemorrhages the clinical picture is alarmingly changed. The flushed face gives way to pallor, the eyes sink into the head, the nose is pinched, the cheeks hollow and mouth compressed, the pulse is weak and rapid, the body is livid and cold and the patient lies apathetically in partial syncope.

In ambulatory cases, as I have said, a cause can be surmised. In those under observation and care an exciting cause is not clear. Bodily activity resultant from delirium, effort, indiscretions of diet, all could be cited, but are more or less speculative. Whether the lifting of the patient to and from the bed into the bath is a cause is open to inquiry. The peripheral vessels are contracted after a cold bath and the viscera are congested, the surface is pale and often cyanotic, the blood-pressure rises though the pulse is usually slower, the patient shivers and complains of cold. These conditions, with the violent movement incident to the lifting of a heavy man, might well be cited as incidental causes. Were the percentage of hemorrhage higher in bathed cases, the above-mentioned influences might well be considered as explanatory of the increase, but as we have shown, the percentage is about the same whether the baths are given or not.

Certain it is, that at the first evidence of intestinal bleeding, though it be never so small, the baths must be stopped and absolute quiet enforced by every endeavor. It would be contrary to good judgment to bathe in a tub a patient who gave even a remote evidence of a recent hemorrhage or the promise of a near one.

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The symptomatology of hemorrhage is often indefinite. In this series 36, or 48.64%, gave no prodromata.

The symptoms recorded are:

Foul stools in 1 case.
Diarrhea in 3 cases.
Pain in 9 cases or 12.1%.
Sudden distention in 3 cases.
Fall of temperature in 13 cases, or 17.5%.
Fall in blood-pressure in 1 case.
Delirium in 6 cases.

This list is of value chiefly in stimulating reflection.

Extremely careful observation would modify it. It is my belief that malodorous stools not infrequently precede hemorrhages. Free blood in the bowel is foul and betrays its presence by the escape of fetid gases. Nurses trained in this particular will often prognosticate a coming hemorrhagic stool. With other corroborative symptoms it is by no means as negligible a factor as our series shows.

Diarrhea sometimes precedes bloody stools. When it suddenly follows constipation it should be considered with reference to hemorrhage.

Fall in blood-pressure has not been extensively studied by us but it frequently happens in massive hemorrhage. To make systematic blood-pressure tracings in a very sick typhoid case is, however, a hardship to the patient and a burden to the attendant. In the large proportion of hemorrhages there is no marked change in the pressure. Sudden rise of the pulse with other symptoms is significant, but it must be remembered that the pulse sometimes falls with the blood-pressure and the temperature. This concurrence is by no means unfavorable, on the contrary the slow pulse in hemorrhage has a favorable prognostic value.

In six cases delirium preceded the hemorrhage.

Of interesting moment is the factor pain. In 12.1% of the cases (9) pain preceded hemorrhage, and in two cases this was so marked and so coassociated that it connoted perforation and impelled to laparotomy for an idea, since there was no perforation. It is well here to anticipate for a moment, long enough to glance at the mortality from hemorrhage and learn that 52.38% of the fatal hemorrhagic cases perforated. With this in mind one can the more readily realize the immense significance of abdominal pain in typhoid fever. It may be due to hemorrhage, to peritonitis, to perforation, to simple hyperesthesia. There are,

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as well, other causes that find their origin in the glands, spleen, kidneys, bowels, vessels, etc., but one of the first mentioned four factors is the highly probable cause of abdominal pain in typhoid fever. With diarrhea pain is more frequent and misleading. The abdomen is tender, but it is generally tender. The pain in hemorrhage is more localized and persistent. The physician sometimes fancies when he suspects a hemorrhage that he can detect a bogginess in the intestinal convolutions as if they contained a thick grumous fluid. One would not expect rigidity but the heightened nervous perception of some individuals causes a fixity of the abdomen that is very disturbing to the observer. Hyperesthesia will do the same thing but here the fixity partakes more of the character of a sharp reflex. Some typhoid cases pursue their entire course with a rigidity of the anterior abdominal wall that precludes any deduction and is a continuous source of anxiety to the attendant. This pain caused by hemorrhage will, at times, be associated with a rigidity that defies analysis.

I may be pardoned here for trespassing beyond the tenor of this resumé by the citation of an instance where the patient came to a useless operation because of hemorrhage. She had had moderately abundant, bright red, bloody stools which were apparently due to one hemorrhage and did not seriously change her condition. Of a morning she had severe pain in the left upper quadrant of the abdomen. There was definite pain to the finger point and, possibly, slight rigidity, yet the abdomen moved synchronously with the respiration. It was surmised that the bleeding point might be in the colon and the floor of the ulcer on the serous coat. The following night there was again a moderately abundant red stool followed by considerable depression of the vitality of the patient. In the morning the pain had increased and was distinctly localized. Abdominal breathing was circumscribed but all respiratory movements were weak and shallow. As the day dragged on the pain increased, the abdomen became more fixed and rigid. Laparotomy was done, no perforation was found and the cultures taken from the abdominal cavity were sterile.

Opium is often used in hemorrhage. In view of the fact that the question of perforation may arise the use of this drug might prevent a diagnosis. I have in mind one case of hemorrhage in which opium was used to excess and the symptoms of

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perforation were obscured so that the opening was not even suspected and was found only at autopsy.

In 17.6% of the cases of hemorrhage there was a fall in the temperature. These were all more or less severe but the observation was not always made before the visible signs of bleeding. The fall was from two to five degrees. In few instances it went below the normal point. Ordinarily it returned to the previous high grade in six to twelve hours. A persistent low temperature after hemorrhage is prognostically unfavorable and bespeaks low resistance. A rapid return of the fever shows vigorous power of reaction and a more decided and persistent strength. In one case a severe hemorrhage in the latter part of the third week was associated with a decided drop of the fever and a persistent low temperature while the patient gradually and rapidly went on into convalescence. Such instanҫes may possibly have been formerly more common and may have lead Trousseau and his school to the belief that hemorrhage had a beneficent potentiality, a most erroneous position which only an occasional and exceptional instance could have suggested. Sudden pallor, pulse acceleration, restlessness with an abrupt critical drop in the temperature are the marked prodromic symptoms.

Of those attacked with intestinal hemorrhage 20 to 30% die. Of the hemorrhage cases in this series 21 individuals, or 28.37% died; this is 1.72% of the entire number of cases. Of the 21 cases 11, or 52.38%, died of perforation, representing 14.8% of the hemorrhagic cases. Nine, or 12.16%, died of toxemia and one from the immediate direct effects of hemorrhage.

I have already hinted at the high percentage of perforations in hemorrhage cases. I apprehend that the idea of perforation is not ordinarily associated with that of hemorrhage. When these two accidents, the most serious that can complicate the course of typhoid fever, coexist in the same individual death is almost absolutely certain.

The time of perforation after hemorrhage was noted in eight of the eleven cases and was:

1 day after hemorrhage in 1 case.
2 days after hemorrhage in 1 case.
3 days after hemorrhage in 1 case.
4 days after hemorrhage in 2 cases.
5 days after hemorrhage in 1 case.
4 weeks after hemorrhage in 2 cases.

Thus in six instances it is persumable that the hemorrhage

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and perforation were incident to the same lesion although naturally this is not absolutely certain.

Of all (39) perforations 28.02% were preceded by hemorrhage. The association of perforation and hemorrhage which a study of this series shows is a most interesting demonstration.

Operation for hemorrhage is of doubtful utility. It is difficult, if not impossible, to find the bleeding points, the dark places that look threatening are due to hemorrhagic infiltration and are not especially dangerous, certainly not dangerous enough to require interference; the manipulation of the bowels necessary to find the bleeding ulcers is of itself provocative of renewed bleeding.

In anticipation of the perforation which intervenes in 52% of the cases of hemorrhage it is very desirable to localize the bleeding point as a guide of more or less importance to the surgeon. It does not follow, of course, that the bleeding ulcer is the one that perforates. Much depends on the rapidity of the operator and everything possible should be done to aid his celerity and despatch. *Cito, tuto et jucundo* should be his motto with emphasis on the first part of this old legend. I fancy that the surgeons of the old French school that flourished before the days of anesthesia would have surpassed in results the careful dissecting surgeons of our day.

When the classical picture of hemorrhage presents itself and a red bloody stool follows sharply on this dreaded apparition, the bleeding originates in the neighborhood of the cecum. Perhaps above, perhaps below, but somewhere thereabout. If the hemorrhage comes on tardily and is black and tarry its origin is high in the ileum and possibly in the jejunum. When the usual symptoms are associated with vomiting the hemorrhage is likely to be high in the small intestine. The behavior of the stools in conjunction with pain will give a reasonable idea of the position of the dangerous ulcer.

However in our series pain was present in only 12.1% of the cases and fall in temperature in but 17.5%, so that there could be no guide in about three-fourths of the cases except what was gained from the stools alone.

The chief therapeutic conception in intestinal hemorrhage is the securing and maintenance of an empty and collapsed bowel whereby the vessels will be compressed and the conditions favoring arrest of hemorrhage will obtain. As in bleeding ulcer of

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the stomach so long as the viscus is distended the openings of the broken vessels more easily remain patulous. If the stomach or the gut can be emptied and the sides of the organ made to fall together the bleeding points are compressed and the hemorrhage mechanically stopped. Other remedial agencies such as cold, astringents, the arousing of vasomotor forces, opium or operative means are insignificant in comparison, valuable as they may be as secondary aids. Fortunately the increased volume of the intestinal contents provokes a large stool and the bowels are partially emptied. The use of a hydrogogue cathartic is thus not necessary. It is moreover questionable whether a purgative should be used in any but early hemorrhage. In the stage of medullary infiltration it could be considered with the expectation that it would act favorably on the swollen tissues as well as empty the bowel. On the other hand early capillary hemorrhages, though sometimes abundant, are very rarely continuous and a cathartic is not demanded. In late hemorrhages with ruptured blood-vessels, the increased peristalsis would be only too apt to increase the hemorrhage. Some of the contents must therefore be left; the bowel can not safely be absolutely cleaned. All food must be interdicted; nothing, not even milk, should be allowed; water can be permitted. As patients very very rarely die as the result of the hemorrhage, and then almost always after several, as shown by one death in this entire series, one can reasonably expect that the patient will quickly recover from the results of his acute anemia, and the entire energy of the physician can be devoted, for a time at least, to stopping the bleeding. The abstinence can be continued six days after the hemorrhage ceases. This plan of complete abstinence has been pursued with especial vigor during the past two years and is probably responsible for the reduced mortality during that time. A Leiter coil or cold applications to the abdomen, stimulants hypodermically, opium in small quantities for restlessness and active peristalsis and water are incidentally used as required; all bathing except for comfort is stopped. This should be done on the slightest suggestion of danger even though extreme measures are not considered necessary. Lactate or chlorid of calcium is employed almost as a routine although its use is not scientifically demanded unless the coagulation time is slow which is not always the case. It is tedious and rarely practicable to estimate the coagulation time, one therefore takes the chance of benefit from it. The older

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remedies, turpentine and ergot, are useless. Opium abolishes peristalsis and is an effective aid. Absolute quiet is essential. In one case, however, in which the hemorrhage was alarmingly extensive and repeated, a large bed-sore developed from the complete rest which was earnestly enjoined.

In nine cases marked toxemia developed with delirium, restlessness, dry tongue, high fever and exhaustion and caused a fatal issue. The withdrawal of the water and the baths, the chief enemies of toxemia in typhoid fever, were largely responsible for this development. The anemia, exhaustion, enfeebled cardiovascular energy, and the cerebral ischemia, by lessening all the protective agencies of the body, contribute to the toxemia as well. Drugs prevail but feebly against it, yet one uses the usual group of strychnin, caffein, alcohol, digitalis and camphor in a vain hope. But it seems sometimes like beating against a stone wall. Hypodermoclysis, oxygen, all the agencies in fact that are known to prevail against profound exhaustion should of course be used.

The supreme consideration to have in mind is the necessity of placing the bowel in a state of absolute rest and collapse.

Hemorrhage is the serious accident of typhoid fever. It causes more deaths than any other complication. Its advent is the instant of alarm. With its coming the patient loses at once twenty to thirty chances out of a hundred for his life. Small wonder then that its clinical history should arouse so active an interest.

1807 Prospect Ave.

The Estimation of the Amount of Paralysis in Infantile Paralysis from the Point of View of Operative Treatment (Tendon and Muscle Transplantation, Etc.)

By HENRY O. FEISS, M. D., Cleveland.

The object of a tendon transplantation in infantile paralysis is to render a joint, made partially useless by the paralysis, more useful by increasing its stability, or increasing its function in a certain direction. This is done by distributing tendinous insertions of muscles about the joint, so that they have the greatest possible mechanical advantage, and is accomplished by substituting good tendons, either in part or in toto, from parts where they can be easily spared, and inserting them into other parts

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where they are of relatively great advantage. To attain this object, we must know definitely which muscles are functionating and which are paralyzed.

It is commonly supposed that the best evidence as to the paralysis of individual muscles from this disease is by means of electrical reactions, that is by testing for the reaction of degeneration. Scientifically speaking, there is no question as to the great importance of this method, but the value of this test, in deciding upon the kind of operation necessary, is usually overrated. In the first place, the method is difficult of application, especially in young children: in the second place, it takes considerable time, and in the third place, the deductions to be drawn are seldom more than those that could be drawn from the simpler methods. For these reasons, almost all men of experience, so far as I know, have come to the conclusion that as a means of diagnosis of the paralysis of individual muscles, electrical reactions have very little practical significance; hence, they seldom use them.

The most important method in testing the activity of an individual muscle or group of muscles is to elicit certain definite movement in the limb tested. If, for example, we wish to test the quadriceps, we ask the patient to extend the leg, and if the patient does so without rotation, it connotes function of that muscle. The value of this method is its simplicity. It may be stated as an argument against this method that the child may be too young to know how to respond actively. In that case an excellent and simple method is to tickle the skin of the limb, thus eliciting a reaction of whatever active motility may be present. Such light stimulation of various parts of the skin will make the limb respond definitely in certain directions according to the area stimulated.

Here it may be said, however, that if the child is too young to know how to respond actively, it is usually too young to be operated upon. This is so, because in infantile paralysis an operation must never be thought of until the natural recovery has reached its full extent. So if a child of two years or younger, has infantile paralysis, it is rarely of practical value, it seems to me, to know accurately just which muscles are paralyzed, because we cannot at any rate consider an operation at that time. Months and often years must elapse before we have a right to be certain that the paralysis has reached a permanent phase, and that no

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further recovery is taking place. By that time almost all children will possess sufficient intelligence to know how to respond by active impulse.

A third method of testing the muscles is by having the child attempt certain motions against resistance. This is the best method of all when the child is intelligent enough to understand. For example, to test the gastrocnemius, the palm of the examiner is placed against the ball of the foot and the child is told to bend the ankle downward (plantar flexion). If there is any power it will be felt by the examiner and the tendo Achillis itself will stand out so as to be visible as well as palpable. For the tibialis anticus and posticus, resistance is placed on the inner side of the foot; for the peroneals, on the outer side; and for the dorsal flexors, on the dorsum, etc. This method tells us not only whether the muscles are functionating but gives us a rough estimation of the amount of power in the muscles tested.

To summarize then, the electrical reactions have their place in diagnosis when it is desirable to attain great scientific accuracy and when the subject is favorable, but in ordinary practise the best methods of testing the function are voluntary impulses on the part of the patient, reflex impulses from stimulating the skin, and thirdly, active impulses against resistance.

Finally, it may be added that if we have decided upon a tendon transplantation the final test of the muscle, whose tendon we are to transplant, is its actual appearance at the time of operation. For example, not long ago it was my intention to transplant the sartorius into the quadriceps, the latter having been paralyzed. I made the incision on the inner side of the patella and exposed the sartorius but noticed at once that it was blanched and atrophied, whereas the color of a healthy muscle should be deep red. For this reason I decided not to touch the sartorius but through the same incision went down to the semimembranosus, which was found to be good and strong and worthy to be transplanted. This I did. So in any other operation, even if the incision is made, the operator can always change his plan if he finds the muscle he hoped to use is not sufficiently strong.

418 Lennox Bldg.

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Delirium

By JOHN PHILLIPS, M. B., Instructor in Medicine, Western Reserve University, Cleveland.

Delirium is a condition that accompanies many forms of disease. It implies failure of many of the mental faculties. We judge the actions of each patient by a certain standard, according to which he may act and still be considered normal. To deviate from this standard, to manifest a perversion of the mental processes in speech or action, is termed delirium. Reason and judgment are lost and the other faculties having lost their guiding power run riot. The imagination is especially active so that the patient may have false ideas—delusions, or sensory images may arise without sensory impressions—hallucinations or actual sensory impressions excite false sensory images—illusions. Samuel Gee aptly says: "What coma is to sleep, delirium is to dreaming. In both dreaming and delirium, reason slumbers. A dreaming person can be roused to full and lasting wakefulness; a delirious person can be roused, but incompletely and for a short time or not at all. Just as the dreamer is only half asleep, so delirium is a state midway between consciousness and coma, that is to say, the reason (primum dormiens) is already comatose. Thus delirium often precedes, and sometimes follows coma."

Delirium may be divided into two classes: (a) quiet, (b) active. In quiet delirium delusions and hallucinations of sight dominate the patient's ideas. He talks in a low, muttering voice, his words are not spoken plainly, he does not recognize his friends and he speaks of imaginary objects which he sees about his bed. In active delirium he is noisy, often crying out in terror, his eyes are wild and staring and he may even attack his attendants, try to escape through the window or to commit suicide in some other way.

Delirium is more common in childhood than in adult life. At this period the onset of a febrile disease or a gastro-intestinal upset may produce delirium and in some cases convulsions. The cause lies in the greater irritability of the nerve centers and the relatively large size of the brain. In old age trivial causes may produce a wandering of the mind due no doubt to the impaired nutrition of the nerve cells from a diseased heart or sclerosed cerebral vessels. Further, certain persons of nervous temperament, whose centers are unstable and who are highly emotional, are more prone to delirium than the slow phlegmatic individual.

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For convenience of description the following classification of this condition from the etiologic standpoint may be adopted:

Delirium:

(a) In acute infections, such as typhoid fever, pneumonia, influenza, etc.

(b) Intoxications: (1) Endogenous, uremia, cholemia, intestinal toxemia, septicemia. (2) Ectogenous—from various drugs: alcohol, sodium salicylate, hyoscin.

(c) Inflammatory affections of the brain and membranes: meningitis, all forms; brain abscess; encephalitis.

(d) Brain tumors—neoplasm, aneurism of cerebral vessels.

(e) Disturbances of the circulation of the brain—anemia, hyperemia, arteriosclerosis and sinus thrombosis.

(f) Condition of extreme weakness, fatigue, shock or grief.

The occurrence of delirium in the acute infectious diseases depends upon the severity of the infection, the duration of the illness and the temperament of the patient. It is more frequently seen in typhoid fever than in the other acute infectious diseases. In those who escape this complication there is usually slow cerebration, disturbance of memory and a condition of apathy. In typhoid fever the delirium may be subdivided into three classes, viz.: (a) delirium of onset, (b) delirium at the height of the disease, (c) postfebrile delirium.

The delirium of onset is usually preceded for a period of two or three days by headache, insomnia, frightful dreams and extreme irritability. This condition of mental confusion increases so that patients may wander away from home or conceal themselves in some unfrequented place, their true condition being often mistaken for one of insanity. In other cases they become very violent, talking loudly, refusing food and even attacking their attendants. Sometimes there will be lucid intervals, in which the patient is quite rational, seems to appreciate what is going on about him and has a fair degree of orientation, but he soon lapses back into his delirious state. This mental aberration usually continues, though modified somewhat in its character, throughout the whole febrile course of the disease and even into the postfebrile period. After recovery the patient has no remembrance of his delirious state. The prognosis in these cases of initial delirium is very grave, as it indicates a virulent infection. In one case seen by the writer two years ago a child five years old, after a period of 24 hours of extreme irritability, developed an acute delirium with temperature of 105° F. so that a probable

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diagnosis of meningitis was made. However, typhoid bacilli were found in blood-culture and in the fluid obtained by lumbar puncture and the case ended fatally on the eighth day. Besides there is some danger that after the acute illness has passed, the patient may pass into a paranoiac state.

The cases of delirium seen during the height of the fever form the largest class. This depends upon two conditions, viz.: the height of the fever and the toxemia. In some of these cases the mental condition is merely a continuation of the initial delirium. These patients have delusions and hallucinations. In one case the patient insisted that he had no throat and for that reason could not be prevailed upon to take any water or nourishment, merely letting it run out of his mouth when any was given to him. Usually for three or four nights preceding the delirium the nurse will notice that the patient is restless and that when he awakens he is flighty, asking often, "Where am I?" This confusion is momentary but each succeeding night it becomes more marked and lasts longer, extending into the day, so that he lies in a semistuporous condition, oblivious of his surroundings, muttering to himself incoherently and showing a great deal of motor restlessness. To the watchful state frequently seen, the term coma vigil is often applied. The motor activity is manifested by a picking at the bedclothes (carphologia), by tremulous hands and spasmodic twitchings or choreiform movements of the extremities (subsultus tendinum). In other cases the motor restlessness is still more marked, so that it is almost impossible to keep the patient in bed. In both of these types the patients, if spoken to sharply, will answer a question, but will soon lapse back into their delirious state. In many cases of profound toxemia, after several days of delirium, a stuporous, almost comatose condition, develops. This was the case in a girl aged 20 seen by the writer. At autopsy only one tiny ulcer was found in the ileum near the ileocecal valve. As the temperature drops the patient as a rule assumes his normal state. Often one sees the delirium disappear after an intestinal hemorrhage. The character of the delirium varies with the previous education and habits of the individual. A polite patient may be polite even in his wandering mental state. The postfebrile delirium may be divided into two classes,—(a) that which develops at the time of the drop in temperature, (b) that which develops some time after the temperature is normal. Its occurrence depends upon the duration and severity of the illness, the condition of anemia

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and the extreme weakness and emaciation. Patients may have delusions, hallucinations or illusions, a condition of mental exaltation or a condition of profound mental depression. My belief is that the postfebrile psychoses are more common in those patients from whom food has been withheld for a long time. When the delirium develops immediately after the drop in temperature, the condition is more likely to be one of mental exaltation and to disappear soon; when it develops late, the condition is likely to be one of melancholia and often persists for a long time or may continue as a permanent insanity. Typhoid fever makes a profound impression upon the brain, as shown by the fact that many individuals are unable for several months to do work, involving profound thought, as well as before.

In pneumonia delirium may be due to a variety of causes, toxemia, fever, inanition, delirium tremens or meningitis. It is more common in apical pneumonia and depends, too, upon the amount of living tissue involved. It is found in from 20 to 30% of the cases. In fatal cases it is usually found at some stage of the disease. A large percent of the chronic alcoholic cases show delirium, often of the delirium tremens type to be described later. In ordinary cases the symptoms vary from those of slight incoherence to wild maniacal symptoms. It is not uncommon for these patients to commit suicide by jumping from a window. As a rule, the delirium begins shortly after the onset of the disease and disappears at the time of the crisis. In weak and aged patients it is apt to be of the low muttering type. In many cases it is seen only at night, the patient being perfectly rational throughout the day. The delirium which occurs after the crisis is found chiefly in the debilitated or in the alcoholic. It may be either of the active maniacal type or the patient may lapse into a condition of melancholia.

In influenza a mental aberration is seen chiefly in those cases in which the onset is marked by excessive headache and severe nervous symptoms. It may be transitory or it may last several days, assuming the same character as that seen in pneumonia. In some of the severe cases the delirium is one of the manifestations of a true meningitis. Melancholia is not infrequently seen after the fever has subsided, because of the extreme prostration.

In the other infectious diseases delirium frequently occurs and assumes the same types described above.

The character of the delirium in the different intoxications

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arising from some cause within the body (endogenous) is very similar. It results from the action of the toxins circulating in the blood on the nerve cells. In other cases, especially when there is excessive headache, a high blood-pressure and, later, stupor, the condition is probably due to excessive intracranial pressure, the result of a serous meningitis with edema of the brain tissue. In uremia the patient lies sometimes in a semi-stuporous condition muttering incoherently to himself. The stage is often preceded by convulsions and soon ends in deep coma. In other cases the patient is maniacal. In one case seen by the writer, an active business man, 55 years of age, suddenly became delirious. His urine showed a trace of albumin, some casts and a few pus cells. He was brought to the hospital and during the two weeks that elapsed between the time of his admission and his death he was in a condition of acute mania. He would try to get out of bed, was very noisy at times, kept repeating words that sounded alike, as "cat, bat and hat," and refused to take any food or water so that nasal feeding had to be employed. At autopsy the only condition found was a suppurative nephritis. As a rule the acute mania seen in cases of nephritis lasts only a short time being succeeded by coma.

In severe jaundice, but especially in that form which is associated with acute yellow atrophy of the liver, delirium is commonly present. Though it may be active in type, it is usually low and muttering in character, the patient being in a semi-stuporous condition. Even in mild cases of jaundice the intellect is dulled. In the late stages of carcinoma of the liver, associated with jaundice and extreme emaciation, a quiet delirium commonly precedes death. In the intestinal toxemias or in septicemia there is nothing distinctive about the delirium. In septicemia it is present during the hours of the day when the fever is high and often disappears with the sweating and drop in temperature.

Delirium tremens usually develops in chronic drunkards, as the result of an alcoholic debauch and injury, or a serious illness, most commonly pneumonia. When it follows an injury it develops two to four days later and the same period of time after the onset of pneumonia. The onset is ushered in by a period of premonitory symptoms lasting 24 or 36 hours. The patient is restless, has marked tremor of his hands, has lost his appetite and cannot sleep. If he does fall asleep, he has frightful dreams and wakens with a start. During this period, if it follows an

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alcoholic debauch, realizing his condition, he will often go to a doctor to get some sedative medicine or beg to be sent to a hospital. In some cases these premonitory symptoms may last as long as 12 days, in others the delirium comes on suddenly. The latter cases will be brought to the hospital fighting furiously. In the active stage of the delirium the patient looks ill, his face is congested and he casts his eyes about anxiously. As a rule he is talkative, shouting, sometimes swearing. His ideas often have relation to his work, for example, a teamster may be driving his horses or he may be actively engaged in fighting some imaginary enemy. Hallucinations of sight prevail. Spots on the wall may be interpreted as animals or as insects. The room will often be full of snakes or the bed clothes covered with vermin—objects which fill the victim with terror so that he will make violent attempts to escape from the room. He sees no objects placed in his way, so that he may injure himself by running against the furniture or against the walls of the room. In the hallucinations of sight the colors of red and blue predominate. Sometimes there are hallucinations of hearing so that the patient may hear ringing of bells or the shrieks of his enemies. In rare cases there are hallucinations of smell. The body is bathed with perspiration, the heart often dilated, the pulse rapid, small and weak, the temperature elevated and the urine and feces are often passed involuntarily. Mild cases last two or three days, severe cases from five to eight days. When the condition ends fatally, death is due to cardiac failure or to pneumonia. In the cases that recover, after a varying period of delirium, the patient drops off into a deep sleep lasting from 10 to 24 hours and awakens in a rational but very weak state. There is a saying attributed to Hippocrates: "When sleep puts an end to delirium it is a good sign," but in cases of alcoholic delirium, especially in men over 50 years of age who have a moderate grade of arteriosclerosis, this sleep may be but the beginning of a stupor from which the patient will never awaken. After the patient has slept 12 or 15 hours, it is noticed that his breathing is very heavy, that his neck is rigid, that his reflexes are increased and that he cannot be aroused. These are cases in which there is a serous meningitis with great increase in the cerebrospinal fluid and edema of the brain. Over one-half of these cases die either from increasing weakness or from pneumonia. With sodium salicylate one occasionally sees delirium. This is not necessarily associated with large doses but may be seen when small doses are given to patients

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who have an idiosyncracy for the drug. Its occurrence has been very rare in the cases of acute articular rheumatism treated in the medical wards of Lakeside Hospital, though as a matter of routine treatment, 20 grains of the sodium salicylate are given every hour until the patient is toxic. In these cases the delirium has been of the active type and has disappeared in from 12 to 24 hours after the drug was discontinued.

Hyoscin is a drug which is frequently given to quiet nervous patients. In a few it has the opposite effect producing a wandering of the mind of short duration with hallucinations of varying character. In one case, in which hyoscin hydrobromate gr. 1/100 was given, the patient saw strings suspended from the ceiling on which small insects were crawling upward. In another case an actor would rehearse his part in a play, though apparently asleep, after a hypodermic injection of 1/100 of a grain of the drug.

In inflammatory diseases of the brain the delirium manifests itself in different ways. In the epidemic form of cerebrospinal meningitis it occurs soon after the onset which is ushered in by severe headache, vomiting, fever and frequently convulsions. The severer the attack the sooner is the function of the brain disturbed. The child usually lies on his side, with head retracted and knees flexed, in a stuporous condition muttering incoherently to himself, at other times crying out loudly. If spoken to sharply, in case his hearing has not been disturbed, he can be aroused and will sometimes answer a question or else cry out to be left alone. This condition persists throughout the active stages of the disease. In the tuberculous form of meningitis the onset of delirium is gradual. For 10 or 12 days previously the parents will have noticed that the disposition of the child has changed. A once lovable child will be irritable, often sleepless at night, and it will be impossible to satisfy his desires. The slight fever, severe headache or perhaps vomiting will appear, to be soon followed by delirium and stupor. In many cases the mental condition may be best described as one of confusion. I recall one instance of tuberculous meningitis in a child of six years of age, who would lie in a half wakeful state when aroused and would move her hands through the air as though trying to grasp some unseen object.

In brain abscess a condition of stupor predominates and the delirium is frequently only transitory. In encephalitis the mental condition is much the same as that seen in the epidemic form of

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cerebrospinal meningitis. Unconsciousness is more common and in the early stage there is frequently seen spasmodic jerking of the face or an extremity from irritation of the cerebral cortex.

In tumors of the brain whether of the ordinary types or aneurismal, the mental condition is often one of extreme apathy, the patient often being dirty in his habits, passing his urine and feces in bed. He will sometimes sit hour by hour in one position, evidently with a vacant mind. In other cases the pain in the head is so severe as to cause delirium. Maniacal conditions have been described in cases of brain tumor but these are rare. The mental impairment is greatest when the tumor involves the frontal lobe.

In conditions of cerebral anemia there is impairment of the nutrition of the nerve cells. This may arise from the poor quality of the blood itself, as in pernicious anemia, or from the poor supply of blood to the brain, due to valvular disease of the heart, diseased myocardium or arteriosclerosis of the cerebral vessels. In the fatal cases of pernicious anemia for several days before death there is often delirium. It is more common in aortic lesions than in other forms of valvular trouble. These patients sometimes have delusions of persecution and will try to commit suicide. One young man suffering from aortic regurgitation, tried to end his life by breaking up a drinking tube and swallowing the glass. In arteriosclerosis of the cerebral vessels the mental change first noticed is one of forgetfulness and lack of power of concentration of thought. Frequently complaint is made of headache, roaring in the ears, dizziness and disturbances of vision. Transient paralysis or temporary aphasia sometimes occurs. As the trouble progresses, the headache may increase and the mental impairment advances so that the patient's mind becomes a blank. These symptoms together with the visual disturbances may make a picture difficult to distinguish from brain tumor. In the later stages disturbances of respiration—nocturnal dyspnea or Cheyne-Stokes respiration make their appearance. Often in cases with Cheyne-Stokes respiration the patient sleeps during the period of apnea, but is quite violent during the period of active respiration. Death soon follows in such cases.

The condition of hyperemia of the brain affects the mentality in the same way as anemia, by impairment of the nutrition of the nerve cells and may give rise to the same symptoms. In thrombosis of the venous sinuses of the dura mater, we have to deal with two conditions that impair the cerebral functions,—(a)

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the interference with the cerebral circulation, (b) the presence of an infectious process associated with a high fever. The delirium may be either quiet or active. In one case of cavernous sinus thrombosis following an abscess about a tooth, seen six months ago, the young man was quite stupid and would not answer intelligently questions asked him. This condition became worse so that he muttered a great deal to himself and soon became unconscious.

In patients suffering from extreme weakness, fatigue, shock or grief one sometimes sees mental weakness and confusion characterized by a low muttering delirium with a tendency to melancholia. In other cases the loss of control of the emotions is marked by loud shrieking and self condemnation which lasts only for a short time.

The care of patients suffering from delirium demands careful nursing and close attention by the physician. It requires tact, careful observation of details and infinite patience. The peculiarities of the mental condition of the patient must be studied so as to anticipate any emergencies that may arise. One should always remember that a delirious patient may at any time attempt to commit suicide. The nurse should be carefully instructed to keep all knives or other articles with which the patient may do himself injury out of the room. So determined are they sometimes in their attempts at self-destruction, that they may hang themselves with a bed sheet or commit suicide by jumping out of a window. Often they will think that a certain part of their body is the offending member and that it must be destroyed. Cases are recorded in which a delirious patient has put out his eyes with a table fork or has tied a string tightly around the offending member, his tongue. Windows should be well barred and the patient should not be left alone.

Careful attention must be paid to cleanliness. These patients frequently have involuntary micturition and defecation, and if the bed is not kept dry and the sheets perfectly smooth, bed-sores are likely to develop. After changing the bed, the buttocks and back should be thoroughly washed with soap and water, carefully dried, rubbed with alcohol and talcum powder or stearate of zinc applied. In the emaciated cases with low muttering delirium, the relief of pressure by pneumatic rubber rings will do much to prevent bed-sores. In the cases with active delirium these devices can not be used.

Nurses should not forget to offer water to these patients

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frequently. There is no one thing that is so often neglected. This entails less care of the mouth, assists in the elimination of toxins and lessens the number of such complications as otitis media. When water is refused, saline injections may be given subcutaneously.

The care of the mouth is important, though often difficult, because the patient resists any attempt to clean it. With the assistance of one or two attendants, to hold the head and keep a mouth gag in place, the nurse can swab out the mouth with lint fastened in a hemostat, using a glycerine and boracic acid mouth wash. The tongue should be anointed with albolene, or the mouth sprayed with the latter, using an atomizer.

It is very essential that a liberal supply of nourishment should be given. Often the patient can be prevailed upon to take food without much trouble. In many cases the food will be taken into the mouth but the patient will not swallow unless commanded to do so. Other cases will resist all attempts at feeding. One must then resort to rectal feeding, nasal feeding or feeding with a stomach-tube. Rectal feeding is of little value as the absorptive powers of the large intestine are small and in delirious patients the nutritive enema is usually expelled. The apparatus necessary for nasal feeding is a good sized catheter, a connecting tube 16 or 18 inches in length and a funnel. Peptonized milk or other predigested food should be given. Unless the patient is in a condition of profound stupor, three assistants are necessary, one to hold the patient's hands, another to hold his head and a third to pour the nutriment into the funnel. The catheter well oiled is passed directly backwards into the nostril, as it reaches the nasopharynx the tip will turn downwards and usually without resistance will pass into the pharynx. Sometimes the passage into the pharynx is facilitated by tilting the head slightly backwards. The catheter is passed in about 15 inches from the nasal opening. Before pouring the fluid into the funnel it is well to note that air is not being breathed in and out through the funnel, so as to be certain the catheter is not in the larynx, though this would usually excite excessive coughing. The fluid is then poured into the funnel and it readily runs into the stomach. When withdrawing the catheter it should be firmly pinched to prevent any drops from getting into the larynx. Water as well as nourishment may be given in this way. Nasal feeding is usually much easier than feeding with a stomach-tube, though in some cases the latter may be tried. Some patients will attempt to vomit but

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this may be avoided by the administration of a small dose of morphin and hyoscin hypodermically a short time previous to the feeding to diminish the pharyngeal reflex. Bromids will have the same effect.

The bladder and bowels should be carefully watched. Often the restlessness of a delirious patient is greatly aggravated by an overdistended bladder and he will go to sleep as soon as he is catheterized. One should not be deceived by the fact that the patient is passing small quantities of urine frequently, as this is often only the overflow from a greatly distended bladder. In such cases I have removed as much as 50 ounces of urine by catheterization. The bowels should be kept freely open by laxatives or by enema, unless there is some particular reason for keeping the bowel at rest.

Baths are necessary for cleanliness and for the sedative action on the nervous system. One will often see a case of delirium tremens fall asleep after a prolonged warm bath. It is a common experience to see a struggling delirious typhoid come out of his bath perfectly rational. Broadbent has obtained good results in some of these cases by dashing cold water on the spine and on the face.

Should a restraining sheet be used in active delirium? That question can usually be answered in the negative. It usually means that there is not sufficient help to care for the patient and it usually aggravates his delirium.

Usually in the cases of delirium occurring in the acute infectious diseases, no drugs are necessary beyond those used for the treatment of the disease itself. In pneumonia in chronic alcoholism, delirium tremens can often be prevented by the routine administration of half an ounce of whiskey three or four times a day. When the delirium is due to pain, as in cases of brain tumor, morphin hypodermically is most effectual. If the mental condition has followed the administration of a drug, this should be immediately stopped. In cases of alcoholism the stomach should be emptied if the patient has been drinking large quantities of alcohol recently. Care must be exercised in giving an emetic to elderly patients with stiffened arteries. In mild cases a dose of a dram of paraldehyde, repeated once or twice at intervals of an hour, will cause the patient to fall asleep and he awakens mentally clear. In the severer cases other sedatives must be used. Chloral is advised by Lanceraux in doses of from 30 to 60 grains. He claims that there is no danger in such doses

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if the heart is properly stimulated. Others recommend a combination of morphin, chloral and tincture of hyoscyamus. These hypnotics cause sleep and thus tend to quiet the delirium. Hyoscin, alone or combined with morphin, in the hands of some has given excellent results though in a few cases it will aggravate the delirium. Bromids seem to have little beneficial effect. Lambert advises the hypodermic use of ergot prepared in the following manner: one dram of the solid extract of ergot is dissolved in an ounce of sterile water, to this is added three drops of chloroform and three grains of chloretone and the solution is filtered. An intramuscular injection of 30 drops of this solution is given every two or four hours. He claims that it reduces the dilatation of the blood-vessels, lessens the various congestions and brings about a better equilibrium of the circulation. Thus it diminishes the tendency to serous meningitis or "wet brain." In cases of alcoholic delirium the heart must be carefully watched and cardiac stimulants used when needed. During convalescence bitter tonics should be given.

The delirium seen in other conditions should be treated on the same general principles. Bromids will give good results in some of these cases. In the delirium due to severe anemia or exhaustion, it will disappear with the improvement in the general health from treatment with iron and other tonics.

The Extent and Variety of Refraction Cases in Cleveland

By L. K. BAKER, M. D., Cleveland.

It is the purpose of the following notes, on the extent and variety of refraction cases in Cleveland, to start some discussion of certain economic aspects of the situation rather than to exhibit clinical statistics.

To begin with, in about what proportion of eye cases do we find it necessary to prescribe glasses as a part of the treatment, thus characterising the case as belonging to that general class commonly known as "refraction cases"? Noyes suggests three-fifths or 60%. Two Cleveland oculists have taken the trouble to look over the histories of 1000 cases during the past week. The percent in the practise of these men runs about the same.

Read before the Ophthalmological and Oto-Laryngological Section of the Academy of Medicine of Cleveland, Feb. 26, 1909.

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The average of refraction cases is 51.6%. Thus it is seen at once that these cases constitute a large and important part of our work. In the second place: Can we estimate approximately, or at least with sufficient accuracy for purposes of discussion, what proportion of the 515,000 people of Cleveland need glasses?

I have at hand two sources of data which seem to me sufficiently reasonable and reliable to be of service as a basis for conservative estimates. The first of these consists of the reports of a certain percentage of the public school teachers during the years 1901-03. The second consists of: (1) A general estimate based upon the ophthalmoscopic examination of 7,000 of the city children, estimated by teachers as having defective vision. (2) Definite records of 3098 East Cleveland and Lakewood children, examined by the writer with the ophthalmoscope during the past four years. As to the reports of teachers: When the first returns were received in 1899 almost 30% of the children were reported defective. We noticed at once that schools containing insufficient window space often gave over 30% of defectives. It was readily apparent that the inexperience of the teachers rendered the estimates entirely too high.

The reports for 1900 were a great improvement over those for 1889. Upon personally looking over the reports of teachers who had tested the eyes of 40,000 children during this year, I found that approximately three-fourths had followed the instructions with sufficient accuracy to enable me to use their records in making a general estimate of the percent of children with less than 20/20 of visual acuity. In the annual report of the Superintendent of Instruction for 1901-02 you will find several pages devoted to the discussion of the questions involved at that stage of the investigation. Among other things we found that of the 30,045 cases, above referred to, 6,221 (20.7%) were reported defective. Had we admitted all the reports of this year they would have shown 26.7% of the children as defective. We considered 20% as rather above the actual percent.

During the progress of the examinations, up to the time the reports were handed in, February 15, 1900, 694 of the children obtained glasses, bringing the total percent with glasses up to 5.4%.

This year teachers entered in registers, in columns provided for that purpose, the vision test, in numbers, of all pupils who could not read 6/6 and this record accompanied the pupil from grade to grade throughout the school course. At the beginning of each year teachers retested all pupils who had a record for

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defective vision or hearing and reported the result on blanks. Pupils new to the Cleveland schools and all second grade pupils were also tested. A review of the credible reports of the six upper grades for 1901-03 gives the following general average for the three years. Of an average of 27,612 cases, 4,754 or 17.2% were rated defective. During this period an average of 4.3% of these children were reported as wearing glasses.

While the hygiene of the eyes was but one of many features of school hygiene the writer was attempting to supervise, and while it occupied but a minor part of his time and attention, still, during the five years he had this in charge, he managed to examine with an ophthalmoscope a trifle over 7,000 of the cases reported defective by teachers in the different buildings. He still found approximately 10% of the children myopic or excessively hyperopic (over one diopter), with, in a large percent of cases, considerable astigmatism in addition. It may also be noted here that the vision tests reported 10% of the children as having 40/20 or less, of vision.

No doubt you have had in mind the four or five percent of hyperopes, of one or more diopters, who are not usually detected by this method of testing. Adding these we should have not less than 14 or 15% of the city children needing glasses. This brings us to a brief consideration of the results of the examination of the eyes of 3,098 children in East Cleveland and Lakewood. Here pupils were examined *seriatim,* not by teachers, but by the writer.

The test for vision and hearing was taken by him, or by a trained assistant directly under his instructions. In every case a brief record was made by an assistant while the fundi were being examined with the ophthalmoscope. (For statistics see the *Ohio State Medical Journal* for January, 1909.) We found among the suburban children that 13.57% could not read the 20 feet letters in a good light at 20 feet. Of these the ophthalmoscopic reading indicated 5.69% as having myopia or myopic astigmatism and 7.27% with two or more diopters of hyperopia or hyperopic astigmatism. Therefore, we placed the lowest estimate of those who should be using glasses at 12.1%. Of these we found, actually wearing them when examined, 5.43% (this includes the 260 Shaw High School pupils, 16.1% of whom we found wearing glasses).

In addition, a considerable percent of children with one to two diopters of hyperopic astigmatism or hyperopia were advised

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to consult an eye doctor. While I have not had time to estimate the percent of this class of children it will be safe to say that it is not less than three percent of the total. Atropia was needed in the treatment of practically all of these and hence they may be classed as refraction cases.

You will have inferred that my estimate of refraction cases is not far from 15%. I should make it larger rather than smaller. Estimating on this basis, however, what do we find?

The Cleveland school census of 1908 shows a school population of pupils between six and 21 years of age of 128,043. The Chamber of Commerce, from this, estimates the city population at 515,000. Approximately 90,000 of the school population can be found in the schools and colleges of the city. These are all eye users. Fifteen percent of them includes 13,500 people. Of the remaining 30,000 young people, working in the various industrial enterprises of the city, it is safe to say that for current reading, as well as for work, at least 12% are urgently in need of glasses. The same rule may be applied to city people between the ages of 21 and 40. Based upon the census of 1900 the proportion of people of presbyopic age (over 40) is 23.4%, at least 90% of whom need glasses. Leaving out 72,100 children under six years of age and 10% of the people over 40 years of age and many cases of low but troublesome degrees of ametropia we may summarize as follows:

For 322,390 people 6:40 years old..... 41,386—12.2%
For 120,510 people 40:100 years old..... 98,159—90 %

Of 443,900 people, glasses are needed by.....135,545—27 %

Even should this estimate seem too high, I am persuaded that the children under six years of age, now being treated with glasses for crossed eyes, added to the large number of eye workers whose symptoms of asthenopia are relieved through the use of comparatively weak lenses, will bring the total of refraction cases up to, or above, the estimated limit.

Let us give our attention for a moment to the consideration of economic, rather than clinical varieties.

1. Possibly one percent of the citizens of Cleveland might be described as wealthy. These furnish few cases. They are well cared for and, for the most part, willing to pay for medical care.

2. A large class of well-to-do people who are not wealthy but who have sufficient means and intelligence to give reasonable

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attention to reasonable advice in sanitary matters. For the most part Lakewood and East Cleveland are made up of people of this class.

In these suburbs the Superintendents of Instruction estimated last term that two-thirds—8%—of the children whose parents had received one note to the effect that their children needed the services of an eye doctor, had acted upon the suggestion.

Selecting from the 58 school districts represented in the statistics of 1902-03, 10 districts, the residential characteristics of which are similar to those of Lakewood and East Cleveland, I find that they contain 5,916 pupils, a proportion of 21.4% of the school population.

The children of these 10 buildings had 356 pair of glasses, while the other 78.6% of the children had but 70% of the glasses. It is not likely that much difference exists to-day as to percents in the different school districts. You will observe that in the most favored districts pupils were, and I have no doubt still are, in arrears. But 6% had glasses.

3. The third class, most numerous of all, is that of the people who are not indigent, who work, but work by the day or week, the income of the family ranging from $10.00 to $20.00 per week. Many of these families contain several school children. For many of them it is almost impossible to pay any large sum for professional skill and yet they are not indigent and they should not be encouraged to become so. Of the 58 school districts under discussion it is safe to say that 38 are filled with this class of children.

In the remaining 10 schools will always be found a large percent of indigency, for these are in the congested tenement districts. So we are not surprised to find among these 4,447 children, but 163 supplied with glasses. For the most part these glasses have been supplied free to indigents.

4. This introduces the fourth general class, viz., indigents. Ten years ago teachers were instructed to investigate, to such extent as they conveniently could, the cases of poor children, mostly those for whom the Board of Education furnished books and shoes, and report their cases to the Supervisor of School Hygiene on the blanks furnished for that purpose. During the five years the writer looked after these matters, 300 (25%) of the teachers reported very close to an even thousand of these cases. The dispensaries all assisted in refracting these children, opticians sold us glasses at wholesale rates for them and the

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money to pay for the glasses was all subscribed by private individuals. It became such a task to get people to raise this money for us that I finally arranged with the Infirmary Department of the City Hall to investigate all cases reported indigent and pay for glasses if the pupils were found to belong to this class. Hence at any time during the past five years any child in the city whose parents really could not pay for glasses could be examined at a dispensary and get an order for glasses at the City Hall. Of this, all teachers, principals and district physicians were duly apprised. Last week Mr. Feltzer, bookkeeper at the infirmary office, was kind enough to look up their disbursements for glasses for indigents during the past five years. They are as follows:

September to January, 1904.....paid for 15 pair
January 1, 1904, to January 1, 1905.....paid for 26 pair
January 1, 1905, to January 1, 1906.....paid for 13 pair
January 1, 1906, to January 1, 1907.....paid for 45 pair
January 1, 1907, to January 1, 1908.....paid for 42 pair
January 1, 1908, to September 1, 1908.....paid for 15 pair

This is an average of 32 pair a year, or 156 pair altogether in five years.

In conclusion, are we not safe in saying that for the two dozen medical men who do more or less refraction work and the dozen opticians and optical companies who attempt to do the same and supply the glasses, we can count on at least 140,000 refraction cases?

Would it not be profitable to investigate some of the following questions? Of approximately 30,000 cases, able to pay a fee and get a good outfit, what percent is already taken care of?

What disposition should be made of the 22,000 indigent cases, particularly in the case of school children? It is evident that almost nothing is being done at present for them.

Then comes the largest class of all, the workers at the machines, in the factories and offices and 60% of the school children who are not indigent but who will never spend from $10.00 to $25.00 for refraction and glasses. What shall be done to educate this large class to care for their eyes? Should oculists be paid to refract school children of this class?

What are opticians and optometrists doing? What should be our relation and our attitude to these people?

Why does not the medical profession support and recommend refraction work more heartily?

These and other important economic considerations seem to me to deserve the attention of a committee of our members.

358 Leader Bldg.

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Fatal Phlebitis of the Cerebral Sinuses and Veins in a Child Fourteen Months Old.

By J. J. THOMAS, M. D., Cleveland.

Cerebral sinus thrombosis may be either primary (marantic), the result of exhausting diseases, or secondary (phlebitic), following some inflammatory disease of the cranial structure. Under the first head are included diseases associated with great fluid loss and heart weakness, also severe intestinal catarrh, chronic suppuration, endo- and myocarditis, lues and tuberculosis attended with severe cachexia.

Under the second head are included affections of the ears, bone disease, suppuration within the skull and eye sockets and of the face, as furunculosis and erysipelas.

According to Macewen the construction of the sinuses predisposes them to thrombosis. Their great width, the rigidity of their walls, their somewhat triangular form, the trabeculae which occasionally cross them, the peculiar manner in which they are prevented from being emptied during inspiration and, in the case of the longitudinal sinus, the direction in which the blood from the cerebral veins enters at an obtuse or right angle against the current, all tend to retard the flow of the blood and thus to favor coagulation. When there is added to these conditions a deficient supply of blood, occasioned by exhaustion or depletion, then marantic thrombosis is apt to form.

Infective thrombosis may originate from local disease in one of two ways. The inflammatory action may extend by contiguity of tissue from the seat of the disease to the sinus, the walls of which become inflamed, the blood in its interior coagulates and adheres to the inner coat and thus phlebitic thrombosis is established. Second, a small vein at the seat of disease may become affected by thrombosis which extends along this vein into the sinus, causing obliteration of the latter.

Zappert says the cerebral symptoms are not very characteristic. They consist of headache, vomiting, night cries, convulsions, somnolence and coma. Sometimes there occur strabismus, nystagmus, dilatation of the pupils and more seldom paralysis in other regions.

Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, April 9, 1909.

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According to Finklestein, the diagnosis is easily made by means of lumbar puncture. With the exception of trauma and pachymeningitis, no other affection of the skull-contents produces a spinal fluid of the same peculiar character. This has a brownish or greenish color, and, after standing, a blood-colored precipitate forms below a light colored fluid, the former consisting of shrunken erythrocytes.

He believes that in the phlebitic form, the character of the spasmodic contractions is significant, in that they are especially tonic and broken only by short jerks. Further, that the eyes are conspicuously affected and that a tachypnea, either constant or of paroxysmal occurrence, is present. Attacks of wild jactitation and piercing cries occur suddenly in the midst of coma, being more typical than the same phenomena in meningitis.

According to Sachs, the symptoms are general and special. In the former are included, intense headache, somnolence—increasing to stupor, coma and convulsions, rigidity of neck, optic neuritis, rigors, accelerated or diminished pulse rate, thready pulse and fluctuating temperature. Most of these would suggest meningitis or encephalitis quite as readily, if the conditions favoring sinus thrombosis are not known to be present. Actual meningitis may be caused by sinus thrombosis, especially the phlebitic form.

Special symptoms refer particularly to disturbances in the venous circulation and to areas of tenderness.

The patient, A. B., was born August 6, '07. Delivery followed an easy labor of five hours, with a very easy low forceps operation. The family history is good. Seven years before, his mother was delivered of a dead seven months' fetus, the cause of death being unknown. At the time of onset of A.'s present illness, his mother had a miscarriage at three months, probably the result of too violent exercise.

The father is healthy. In early childhood he was said to have had acute hydrocephalus, but as his illness was associated with suppurative otitis media, the diagnosis presumably should have been meningitis. Certainly no evidence of either is present now. Father's brother died in early childhood of what was said to be hydrocephalus.

At birth, A. B. weighed 8¼ lbs. and was perfectly healthy. He received an abundance of breast milk and when four weeks old weighed 12 lbs. He then began to vomit, the attacks being of a decidedly expulsive character and recurring every few days. The attending physician, assuming that the breast milk was at fault and failing to remedy the trouble, advised weaning, which was done. Various foods were tried, with no benefit, in spite of frequent changes in the quantity and quality of the food. Judging from the history, the practise was to dilute the food and shorten the intervals of feeding as soon as vomiting began. With all the foods tried the same result was achieved, an apparent improvement

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for a time, then a recurrence of the expulsive vomiting and a repetition of the program.

I was called to see the child when it was eight months old. It weighed then a trifle over 9 lbs. It was not markedly atrophic. It was fairly lively, but showed slight signs of rickets and anemia. The pylorus could not be felt, nor could gastric peristaltic waves be seen. As the vomiting was apparently due to pyloric spasm and not to gastric indigestion, the quality of the food was considered to be of minor importance. The mother, therefore, was directed to give the child six ounces of a one-half dilution of Certified Milk, at four hour intervals, and one grain of sodium citrate to each ounce of milk was added to each bottle. At the first feeding the mother gave eight ounces of this mixture instead of six. The child did not vomit, but slept peacefully for four hours. With the exception of two or three attacks of slight vomiting at intervals of a week or more, no further difficulty was experienced with the feeding and at the end of a month the child weighed 12½ lbs. He gained 1½ lbs. the first 10 days on the milk dilution. His further history was uneventful until the onset of the illness to be described, when he appeared to be of normal development physically and mentally, although not so forward mentally as many children of his age. In fact the day before the illness began, while in attendance on the mother, I saw the child, and he appeared to be perfectly well.

During the night of Sept. 27, '08, he began to vomit, but this was not of the expulsive type of his early attacks. The vomiting continued for two days, even albumin water being rejected. The child cried a great deal but the cry was not characteristic, except of pain. Drowsiness, but not stupor, was present. Temperature and pulse were normal and physical signs negative. On the second day the ears were carefully examined and seemed normal, throat normal also. On the morning of the third day vomiting ceased, but stupor, with spasms of the muscles of the right side of the face, the right arm and leg appeared.

These spasms occurred every half minute and were accompanied by great pain, causing the child to utter piercing cries, but during the intervals he was quiet. During the spasms all the muscles of the right side of the face were contracted, the right arm assumed the position as seen in tetany and the right leg likewise, but to a less marked degree. Trousseu's sign, or squeezing the arm or leg, elicited the phenomena, with great pain attending the contractions. Chvostek's sign was not present. The eyes constantly deviated to the right and the pupils reacted to light. Kernig's and Babinski's signs were absent and there was no "tache cerebral." The knee reflexes were lively, especially on the right side. After each spasm the child made a peculiar sucking noise. At irregular intervals there occurred deep sighing respirations, the inspirations being shorter than the expirations.

As the symptoms were suggestive of some cerebral involvement and the examination of the ears was not entirely satisfactory, on the following day Dr J. N. Lenker was asked to see the child. He found the ears quite normal and excluded any trouble from this source. The child had been taking one-third milk since the day previous. The temperature and pulse remained normal.

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The next day conditions remained the same, except that the spasms were not so frequent or violent, particularly of the face. On the following day slight opisthotonos appeared and the spasms were accompanied with much more pain. Warm baths and sodium bromid had no effect in relieving the symptoms.

On the following day, one week from the onset, Dr E. F. Cushing was asked to see the patient. The facial spasms now occurred on the left side. Stupor had deepened and the child was apparently blind, as the eyes did not follow bright objects, although a bright light induced closure of the lids. There was no reaction to loud noises, such as clapping the hands close to the ears. At this time the diagnosis of encephalitis seemed justified, although the continuance of the normal temperature was surprising. There was slight bulging of the anterior fontanelle, but no edema occurred on the head at any time.

The following day Dr S. W. Kelley saw the patient. During the examination the spasms several times shifted with startling suddenness from one side to the other. Now the entire right side would contract, with deviation of the eyes to the right. Suddenly the spasms would cease on the right side, only to recur at once on the entire left side, with the eyes turned to the left. Opisthotonos was more pronounced and Cheyne-Stokes respiration appeared. The pulse at this time was 100 and regular, with normal temperature.

The following day considerable improvement was noted. There were no spasms during the night and the child slept well. Slight spasms occurred during the morning. At times slight evidence of returning vision was noticed.

In the evening Dr C. F. Hoover saw the patient and confirmed the diagnosis of encephalitis. Lumbar puncture was suggested at this time for the purpose of diagnosis, but, as no therapeutic results could be promised, the parents preferred that it should not be done.

Marked improvement appeared during the two following days. On the second and the morning of the third day, the eyes followed the fingers passed across the visual fields. The child seemed to recognize its father several times as evidenced by smiling when he came into the room and approached the bed. The spasms were slight and infrequent. On Oct. 8 it was noticed that the left side of the face seemed paralyzed when the child smiled.

The patient was fretful during the morning of Oct. 9. At 1:30 P. M. the child was seized with general convulsions, at intervals of five or 10 seconds, and emitted loud, piercing cries. The temperature for the first time was elevated, being 102° at 3 P. M. The usual remedies were applied with no effect. Large doses of chloral frequently repeated seemed to have no effect, about 12 grs. being given per rectum in four hours. During the following morning, however, the child slept and there were no spasms.

Late in the morning spasms returned and a hypodermic of morphin, grs. 1/50, was given. This had an immediate effect and subsequently this treatment alone was given to control spasms. The dose was gradually reduced, and in a short time 1/100 grs. was sufficient to quiet the patient at any time. During the afternoon of Oct. 10 the temperature rose to 104° and the pulse to 120.

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On Oct. 11, the child was unable to swallow, although it had taken nourishment very well up to this time. There was cyanosis of the face and its general appearance was bad. Two days later ability to swallow returned, but not more than one ounce at a time was taken. Difficulty in swallowing quickly disappeared, however, and after a day or two the child took nourishment without difficulty. Slight spasms continued.

Nothing of note occurred until Oct. 25. Slight irregulariy localized spasms continued at irregular intervals, but no sign of consciousness returned at any time, and at no time was other than a fatal result anticipated.

On Oct. 25, the right submaxillary gland became much enlarged and very sensitive. This morning the mother noticed that the superficial veins on the right side of the head, particularly of the forehead, were much swollen. This swelling entirely disappeared in half an hour. The nurse noticed the same phenomenon on the following day, the swelling disappearing in half an hour.

On the afternoon of Oct. 26 a discharge of thick yellow pus appeared in the right ear. The temperature was rather high.

On the morning of Oct. 27, after a restless night, the child went into collapse, with a very irregular weak pulse and Cheyne-Stokes respiration. A spot of hyperemia was noticed, about the size of a five-cent piece at the center of the left side of the nose.

The treatment was entirely symptomatic with the exception of mercury with chalk, grs. ½ t. i. d., on the supposition that the trouble might possibly be luetic, although the history gave no grounds for such a suspicion.

The child died at 12:30 P. M. Autopsy was granted and performed at 8 P. M. by Dr David Marine, whose report follows:

The subcutaneous fatty tissue is well preserved. The head is proportionately larger than the rest of the body. The eyes and mouth are negative on general inspection, as are also the other external parts.

Anatomic Diagnosis:

(1) Acute generalized meningitis associated with slight greyish exudate in the pia and arachnoid membranes and a very extensive, slightly turbid fluid exudate in the subdural space.

(2) Partial (mural) thrombosis of the superior and inferior longitudinal sinuses, of the right and left lateral sinuses extending into the jugular foramina.

(3) Complete thrombosis of the petrosal sinues and of the subpial veins in many parts of the cerebral and cerebellar cortices.

(4) Early vegetative endocarditis of the mitral valves.

(5) Acute splenic tumor.

(6) Very extensive, edematous softening of the brain.

(7) Parenchymatous degeneration of the kidneys, liver and heart muscle.

The invading organism and its portal of entry not having been ascertained, it is scarcely possible to say more than to suggest that the invading organism was a staphylococcus, inasmuch as cocci were made out in the microscopic examination of the brain.

1110 Euclid Ave.

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The Cleveland Medical Journal

CONTINUING { THE CLEVELAND MEDICAL GAZETTE and THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

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EDITORIAL

Paroxysmal Haemoglobinuria

The very extensive and painstaking researches of recent years concerning the haemolytic properties of animal fluids have been prompted, not perhaps so much because a knowledge of the power to destroy red blood-corpuscles is in itself of direct practical importance in medical practice, but because it is known that all other lytic or cell-destroying agencies which may, as a result of disease or inoculation, become developed in the animal fluids are governed by laws that are similar to those which govern the process of haemolysis. The laking of blood produced by haemolysins is a much simpler and a less time-consuming phenomenon to study than are the effects produced by other cytolysins, so that it is taken as a type of these. In this way such studies have proved themselves of inestimable value in the development

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of our knowledge of the whole subject of immunity; they have indicated what is to be expected regarding the mode of action of other cell poisons of animal origin, and they have not infrequently furnished the cue by which most important practical discoveries have been made.

In itself, however, the process of haemolysis is of considerable interest to the physiologist and internist. To the physiologist, it is important because a certain amount of it is continually going on in the animal body, although by this physiological haemolysis no blood-pigment appears free in the plasma, being elaborated into the pigment of bile and urine. To the internist, it is of interest in connection with the transfusion of blood for the mixing of foreign blood, and sometimes even of human blood from another individual, is often followed by extensive destruction of the erythrocytes in the vessels of the recipient. So extensive indeed as to make the promiscuous transfusion of blood a dangerous proceeding.

Of still greater interest than these, however, is the *intra vitam* haemolysis due to the development in the blood of autohaemolysins, that is to say, of toxic substances, which, without any inoculation, appear in the blood and cause dissolution of many of the erythrocytes, with consequent haemoglobinaemia and haemoglobinuria. *Paroxysmal haemoglobinuria* is the clinical term for this condition and, since several cases have recently been carefully studied and reported, it may be of interest to review briefly some of the work.

The condition suddenly appears in an otherwise healthy person, although a history of syphilis is common, and, in many of the cases, previous susceptibility to vasomotor spasms (localized asphyxias—Raynaud's disease) is reported. The exciting cause is most often exposure to cold, but severe exertion, alcoholic bouts, etc., may also bring on an attack. In warm weather attacks are very rare, but in cold weather the slightest chill, even sitting at an open window, is usually sufficient to bring one on. In a susceptible patient, placing one foot in a vessel of cold water will usually within two hours induce a typical and severe paroxysm. During the first hour or so, the mouth temperature falls by about one degree F. and, at the end of this time, the patient begins to complain of a chill. This is soon followed by a rigor, which quickly gives place to a sensation of warmth. If, now, the mouth temperature be recorded it will be found to have shot up by sev-

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eral degrees F. (rising sometimes five degrees F. in an hour). Urine voided about the time of the rigor and for some time afterwards contains a considerable amount of haemoglobin, and if the blood be removed from a vein and, after preventing clotting by mixing with one percent oxalate, centrifuged, the plasma will be found quite deeply tinged with haemoglobin. The cause of the haemoglobinuria is evidently an *intra vitam* haemolysis; so that, in the more recent studies of the disease, most attention has been given to the question: How does the application of cold bring about this haemolysis? Three possibilities are, in general, to be considered: (1) that the cold has caused some haemolytic substances to become developed in the blood; (2) that the cold has facilitated the action of some haemolytic substance already present in the blood but which cannot produce its action unless the body, or a part of it, be chilled; (3) that the application of cold lowers the resistance of the erythrocytes so that their haemoglobin escapes into the plasma. To decide between these possibilities, it is evident that the blood of the patient must be investigated prior to the attack. This has been done by several observers (Donath and Landsteiner, Widal and Rostain, Eason, Hoover and Stone and Macalister), all of whom have found that, prior to the attack, the blood of the patient shows no spontaneous haemolysis, but that when the blood is cooled to 5° C. for some time and then raised to body temperature, haemolysis occurs. If, on the other hand, instead of the blood, some serum or oxalate plasma alone be cooled, then mixed with blood-corpuscles and incubated, no haemolysis is produced. It is evidently necessary to cool the mixture of serum or plasma in presence of the corpuscles. It does not matter whether the corpuscles employed are those of the patient's own blood or those from a normal person: the results obtained are the same whatever the source of the corpuscles. Unquestionably then the action of the cold is not that it produces some haemolytic body *de novo,* or that it lowers the resistance of the erythrocytes, but that it allows some haemolytic agency already present in the blood to become active. It activates a potential haemolysin.

By the investigations of Ehrlich and others, it has been established that the haemolysins which may occur in animal fluids are composed of two parts, the one—called amboceptor—which is not destroyed by a temperature of 56° C., the other—the complement—which is destroyed at 56° C.; and that, when a

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corpuscle undergoes haemolysis, it combines first of all with the amboceptor and then with the complement. It has further been found that the specificity of a haemolysin, i. e., its power of haemolysing only one form of erythrocyte, is a function of the amboceptor, whereas the complement is universally present in blood and, under normal conditions, fails to produce haemolysis only because there is no amboceptor present to combine it with the corpuscles. It is of interest to see in how far the haemolysin of paroxysmal haemoglobinuria conforms with these facts. The crucial test for this purpose consists in warming the fluid containing the haemolytic substance to 56° C. to destroy its complement, then mixing it with susceptible corpuscles, which have been washed free of all adherent serum, when no haemolysis will occur. The serum is said to be inactivated. If now some serum from *any* healthy individual be added to the above mixture, haemolysis still follows, because normal serum contains complement. Applying this test to the serum of a haemoglobinuric patient, taken in the interim of attacks, it has been found that if his serum be inactivated, then mixed with corpuscles,, the mixture cooled and then raised to body temperature, no haemolysis occurs. If, however, some serum from a normal individual be now added haemolysis will follow. It is claimed by some observers (Hoover and Stone) that for this reactivation to be successful, a second cooling, i. e., after the addition of serum, is necessary. Needless to say, these results are not obtained when blood from a normal individual is similarly investigated.

The conclusions from this experiment are that: (1) The haemolysin is of the usual complex type. (2) Fixation of the amboceptor to the corpuscle requires cold. (3) The amboceptor is the specific body, the complement being universally present in normal blood-serum. The actual dissolution of the corpuscle does not occur in the cold but it becomes united with amboceptor so that, when the temperature is raised, the complement acts on it, and haemolysis follows. The union of corpuscle with amboceptor is a very firm one for if washed corpuscles, which have been kept in the cold with inactivated serum, be repeatedly washed with isotonic saline solution they are still susceptible to the action of complement. If inactivated serum be mixed with an excess of corpuscles and cooled for some time all of the amboceptor will be removed from it—i. e., if the mixture be centrifuged, the supernatant fluid will be found to contain no ambo-

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ceptor—showing that we are dealing with a definite chemical substance and not with a catalytic agent, the most characteristic property of which is that it is not used up in the reaction which it brings about.

Haemolysins, like cell toxins in general, when repeatedly injected in gradually increasing dosages into susceptible animals lead to the production, in the blood of the latter, of antihaemolysins. These antihaemolysins can, like amboceptors, withstand heating to 56° C. and their presence is revealed by adding inactivated blood-serum supposed to contain them, to a mixture of haemolytic blood-serum and susceptible corpuscles, when no haemolysis will follow. Applying these facts to the case in question it has been found that if a rabbit be intraperitoneally inoculated every two or three days with normal human serum (5—10 c.c.) for two or three weeks and then bled, its blood-serum will, after inactivation, inhibit the haemolytic action of serum from one of the above patients. This result has suggested that inoculation of such antihaemolytic serum into the patient would confer on him a passive immunity from attack on exposure to cold, and such indeed has been found by Widal and Rostain to be the case. Injection, subcutaneously, of 25 c.c. of inactivated serum from a sensitized rabbit conferred an immunity from attack on exposure to cold lasting for 10 days. Curiously enough, however, the blood-serum of these patients, during their passive immunity, still causes haemolysis *in vitro,* when chilled and then incubated with corpuscles in the above described manner.

To sum up the conclusions from the above experiments, one may state that the attacks of haemoglobinuria, in these patients, are due to the activation in the blood of an autohaemolysin, which, in the interim of attacks, is in a dormant state. The haemolysin is of the usual complex type, the amboceptor fraction being that which is peculiar to the blood of these patients, the complement fraction being a normal constituent of the blood of both healthy and diseased individuals. Since this haemolysin acts as readily on corpuscles from healthy individuals as on those of the patient himself, there is no need to assume that the latter are more vulnerable than normal.

To demonstrate the existence of the potential haemolysin in blood-serum drawn in the interim of attacks, it is necessary to almost freeze the serum in the presence of corpuscles and then incubate. To bring on an actual attack on the patient it is often

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only necessary to subject him to a moderate degree of cold. It does not seem probable, therefore, that the mechanism by which haemolysis occurs *in vitro* and *in vivo* are quite the same; it would seem more reasonable to assume that some other activating force than actual cooling of the blood in the blood-vessels must act in bringing on an attack. It has been suggested that this may be of the nature of a vascular reflex such as that which occurs in Raynaud's disease, in urticaria, in cyanosis, etc., and the facts that these conditions are often associated with this disease and that other peripheral stimuli than cold may be the exciting cause, would seem to lend some support to the contention. How this vascular reflex can bring about haemolysis is left unexplained. There are many other things about this disease, such as the great diminution in the number of the erythrocytes, the leukocytosis, the urinary changes, etc., that are worthy of notice, but space compels their omission. One other problem of the researches on this and other processes of haemolysis should, however, be alluded to, namely the chemical nature of the haemolysin. Chemical haemolysers such as saponin, ether, etc., undoubtedly act on the fatty or lipoid substances in the envelope of the corpuscle, so damaging it as to allow the haemoglobin to escape. The lipoid substances include cholesterin and it has been found that if cholesterin be shaken in some of the serum from one of the above patients, then the serum loses its haemolytic power. It is assumed that the added cholesterin combines with the haemolysin (amboceptor) so that it no longer is free to combine with the cholesterin of the corpuscular envelope. The added cholesterin has side-tracked the haemolysin from the cholesterin constituent of the corpuscle. Subcutaneous injection of cholesterin into the above patients has not, however, proved of any value in warding off attacks. Eating large amounts of fats (for which some of the patients have an abhorrence) is also being tried as a remedial agent. At the present stage of the investigations it would, however, be injudicious to discuss these questions further. J. J. R. M.

The Sensorial System of the Facial Nerve and Its Symtomatology

Under this title J. Ramsay Hunt, of New York, has published in the *Journal of Nervous and Mental Diseases,* June, 1909, a very interesting and instructive paper. He considers the motor

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and sensory systems of the facial as a single nerve, the seventh cranial nerve having a ganglion (the geniculate) and two roots (motor and sensory). The motor root is the facial nerve proper to the point of fusion with the ganglion; the sensory root is the so-called pars intermedia of Wrisberg. In this respect it is the homologue of the fifth nerve with its Gasserian ganglion, motor and sensory roots. He divides the seventh nerve on the peripheral side of the geniculate ganglion into three principal branches:—1. The great superficial petrosal nerve with its tympanic branch and connections with Meckel's ganglion. This branch of the facial system stands in relation with the second division of the fifth and has important reflex functions (reflex otalgia). 2. The small superficial petrosal nerve with its tympanic branch and connections with the otic ganglion. This branch has important reflex functions from the connection with the third division of the fifth (reflex otalgia). 3. The Fallopian facial, including the motor trunk, the chorda tympani and sensory fibers for the auricle. Around this branch is grouped the well established symptomatology of Bell's palsy. This branch contains motor fibers proper, the chorda tympani branch to the tongue and sensory fibers which emerge at the stylomastoid foramen for distribution on the auricle (the zoster zone of the geniculate).

Hunt summarizes the sensory functions of the seventh nerve as follows: (a) Special sense fibers to the anterior two-thirds of the tongue (chorda tympani). (b) Sensory anastomosis with the terminations of the auditory nerve (internal ear). (c) Sensory fibers to the middle ear, mastoid cells and Eustachian tube (deep branches of the petrosal nerves). (d) Sensory fibers to the anterior two-thirds of the tongue (chorda tympani). These fibers have to do with a crude sort of sensation that persists after removal of the Gasserian ganglion, a fact which has been noted before by Harvey Cushing. (e) Sensory fibers to the external ear (emerging with the facial trunk at the stylomastoid foramen).

One interesting group of cases are those having an herpetic inflammation of the geniculate ganglion. The zoster zone for the geniculate, though not definitely made out, lies within a cone shaped area represented by the tympanic membrane, the walls of the auditory canal, external meatus, concha, tragus, antitragus and antihelix. Herpes oticus is not the only manifestation of inflammation of the geniculate ganglion but from the close prox-

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imity of the facial and auditory nerves, these structures may be involved. Thus with herpes oticus there may be facial paralysis, or the affection of the auditory nerve may give rise to the typical symptoms of Meniere's disease. Further there may be otalgia the result of functional disturbance of the sensory system of the facial. In addition there may be reflex neuralgia of the ear, the result of deep seated inflammation in the buccal cavity and nasopharynx. Otalgia the result of lesions in these regions can be easily explained on the basis of the connection between the fifth nerve and the sensory portion of the seventh. In one case of tabetic otalgia, Hunt found well marked degeneration in the sensory root of the seventh (nerve of Wrisberg), which shows conclusively that this structure may be involved in the root degenerations of tabes.

The sensory facial is also important as a reflex mechanism in the transmission of afferent impulses to the facial nucleus. These impulses may be conveyed from areas supplied either by the sensory system of the facial or from areas supplied by the second and third divisions of the fifth because of their connections with the petrosal nerve. Irritative lesions in these areas give rise to impulses which pass to the facial nucleus and thus cause facial twitchings and spasms. J. P.

Congenital Family Cholemia

Congenital family cholemia is a condition, which has been described only within the last decade, but when once it becomes generally recognized, it will probably not prove as rare as was supposed. This disease is characterized, as the name will imply, by jaundice which is usually very slight, and differs from that of obstructive jaundice in not being associated with bile-pigment in the urine, acholic feces, pruritus or xanthoma. The jaundice may occur in early life as a congenital or familial, or both congenital and familial, peculiarly, or may be acquired in later life. It may affect successive generations or several members of the same generation. There is enlargement of the spleen and sometimes of the liver also. The blood shows marked changes, there being a diminution of the red corpuscles and hemoglobin and the presence of nucleated red cells, both normoblasts and megaloblasts. Bile-pigment is present in the serum, but is usually absent from the urine, which, however, exhibits the presence of urobilin in ex-

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cess. The patient has no subjective symptoms as a rule except those of anemia. A few cases, however, have had attacks of abdominal pain or of general depression, lethargy, or drowsiness, accompanied by temporary increase in the degree of the jaundice and sometimes by moderate fever. Hutchinson (*Clinical Journal,* July 28, 1909) supports the view that the jaundice is hematogenous. He bases his conclusions on the presence of anemia with nucleated red corpuscles, and on the fact that there is distinct evidence that the red blood-corpuscles are unusually fragile. This view is not confirmed by the observations of F. Parkes Weber (*International Clinics,* Vol. II, 1909). It is to be hoped that clinical observers and investigators acquainted with this condition will soon be able to give us the true pathology of this interesting disease. J. P.

Department of Therapeutics

Conducted by J. B. McGEE, M. D.

Pneumonia: In the *Monthly Cyclopaedia and Medical Bulletin* for July, A. Jacobi summarizes the medicinal therapy of pneumonia in the last half century and believes that some rules are valid for all patients sick with pneumonia, viz.: rest of body and mind; no visitors; no noise; no excess of light; no high temperature of the room air, not higher than 60 to 65° F. but not necessarily as low in all cases as Northrup recommends; liquid food, milk diluted with cereals or milk diluted with hydrochloric acid (diluted hydrochloric acid 1, water 250, milk 500; heat to boiling point); plenty of water or lemonade or hydrochloric acid in water; a purgative to relieve the abdominal circulation and the diaphragm, e. g., calomel, unless hydrochloric acid be taken; no heavy bedding; warm the feet; mustard paste to the chest; mustard footbaths in bed. In very fulminant cases with excessive congestion and cyanosis a venesection is advisable. It is understood that a high temperature is not a uniform danger, but in persons suffering from an old heart lesion, in the prematurely born or in the anemic of all ages it is, or may be, so. Whether a warm bath, or a warm bath gradually cooled down, or a cold bath, or a cold washing and sponging with friction, or a warm or a cold pack over the chest and abdomen, or the local application of an ice-bag is indicated depends on the individual case and the individual doctor.

A fat person, a feeble person, a tuberculous person, an influenza patient, a child with a lobular pneumonia, requires early stimulation; he has seen harm from neglecting, but never any from obeying, this indication. As alcohol is in part eliminated through the lungs, he believes it better not to give it during the first few days. Moderate doses of digitalis, strophanthus, spartein, caffein or ammonium (liquor anisatus is better than the carbonate) will be well tolerated, will brace the heart and may save the strength required for a speedy convalescence. Strychnin is given too much; indeed it is abused. In myocarditis it is not well borne. In arteriosclerosis it may be tolerated in small doses, but we do not give medicines for an indifferent but for a full effect. The dose of strychnin must be large in the septic and the thoroughly anemic. As a stimulant he believes in camphor, also in benzoic acid, about a gram or more daily by mouth or, when the stomach refuses it, subcutaneously.

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Dry pleurisy with its excessive pain demands morphin, never internally but subcutaneously; internally it will have no effect such as is desired; subcutaneously, that means locally over the seat of the pain, it will never fail. It will not cure but it will relieve and aid in curing the patient. Incessant cough and sleeplessness caused by pain must be relieved by an opiate or the patient may be killed if he is not relieved. The fanatic interdiction of opium, in cases of infants, is copied from one textbook into the next by those who treat people at their desks and not at the bedside.

Diuretics: William H. Porter in *American Medicine* for June summarizes the uses and comparative value of the diuretics. When viewed in the light of our present knowledge, some remedies which are the most valuable in the management of anuria, in a strict interpretation, produce no direct or primary diuretic effect upon the renal glands but act secondarily by removing the cause. This is best illustrated by calomel and other mercurials which augment renal activity in those toxic forms of anuria due to putrefactive changes in the alimentary canal and toxic infection therefrom. In anuria in connection with surgical cases, and especially in genito-urinary surgery, the continuous use of large draughts of water may be all that is required to prevent and overcome inaction of the renal glands. The three agents which are most effective in causing an increased heart action and contraction of the blood-vessels and in exciting the vasomotor centers to increased activity are strychnin, caffein, digitalis and their derivatives. In those cases in which there is general venous engorgement with marked swelling of the epithelial cells of the uriniferous tubules and compression obstruction of the intertubular plexus of blood-vessels, digitalis is *par excellence* the remedial agent, because it has a greater power to overcome the mechanical obstruction to the circulation than any other drug or compound. It tends, as it were, to lift a larger volume of blood over from the venous to the arterial side of the circulatory system. Neither digitalis nor any other drug can be indiscriminately used without the risk of producing more damage than good. There is one remedy which has not gained admission to the pharmacopœia, but which has been extensively and successfully used for many years. This compound, diuretin, by its oxidation reduction excites the renal cells to increased secretory and oxidation reduction of proteid molecules and hence becomes a positive diuretic. In this class of cases there is no single preparation that so effectually stimulates the nerve centers, augments the muscular power of the heart and increases vascular tension as does diuretin, and with the least possible intrinsic structural damage. When we come to the class of anurias due to extremely high tension of the blood-vessels, especially in those of the splanchnic arcade and the renal arteries, these medicinal agents must be discarded. Here the agents that tend to soften and expand the vascular walls must be employed. By these agents we are able to lower the tension, especially in the renal arteries, and a more nearly normal condition is established as far as the renal circulation is concerned. A true diuretic effect is produced, a polyuria is overcome and the epithelial cells are made to perform more work and more perfectly. The remedy which produces this effect most surely is nitrite of sodium which, like diuretin, is best prescribed in tablet form. Under its use, in from one to two grain doses every three to four hours, the vessels will, in many instances, become soft and expand until nearly normal tension is reached and a satisfactory diuretic action is produced. Failure to recognize the different chemicopathologic conditions and their method of development, together with the selection of unsuitable remedies, often results in failure and brings discredit upon scientific therapeutics.

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The High Enema: Horace W. Soper in the *Journal A. M. A.* for Aug. 7 considers the question of how far into the colon a soft rubber tube can be introduced. He believes that it is only in those rare cases of abnormal development of the sigmoid that it is possible to introduce a soft rubber tube higher than six or seven inches in the rectum without the tube bending or coiling on itself. With the aid of the sigmoidoscope only the middle of the sigmoid can be reached. The practise of allowing liquids to flow through the tube simultaneously with its introduction serves to smooth the kinks and adds to the illusion that the tube is going higher. The short tube, six inches in length, is therefore best for all sorts of enemata, e. g., (a) when water, etc., is introduced for the purpose of causing fecal evacuations, using the fountain syringe or funnel and long tube in the usual way. It is possible, as he has frequently demonstrated, thoroughly to cleanse the entire colon by using a large caliber (½ inch) short tube. This is connected by rubber tubing to a large funnel elevated from 3 to 4 feet; the solution is poured in until the patient experiences a feeling of distention or desire to evacuate; then the funnel is lowered until the outflow has ceased, and this maneuver is repeated in exactly the same manner as in gastric lavage. The short tube is also best (b) when retention of liquid is desired, as in administering saline solution, oil, nutrient material, etc. The attempt to pass the tube higher into the bowels is not only unnecessary but, because of the coiling that inevitably occurs, such a manipulation tends to produce irritability of the bowel and this, of course, will very probably cause expulsion of the fluid.

Duodenal Ulcer: In the August number of the *American Journal of the Medical Sciences,* Max Einhorn asserts that the treatment of duodenal ulcer should at first be medical. In the mild cases regulation of the diet, frequent meals, abstention from highly seasoned foods, acids and too fatty foods; improving the general condition by means of iron, arsenic, cold sponging, good air, avoidance of bodily exercise and the use of alkalies are sufficient to effect a considerable amelioration, if not a cure. In several cases olive oil, two tablespoonfuls morning and evening, seemed to be of service. In graver cases of duodenal ulcer with hemorrhages, severe pain, etc., a strict ulcer-cure with rest in bed and rectal alimentation and afterward fluid diet must be instituted. In these cases large doses of magnesia and bismuth are of benefit: calcined magnesia gm. 0.5 (8 grains), bismuth subnitrate gm. 2 (30 grains), in powders,—one powder three times a day, a half hour before meals. If a strict rest cure has been unsuccessful, or if we have to deal with severe hemorrhages, which are endangering life and returning frequently, or if obstinate spasm of the pylorus occurs, associated with severe pains in the pyloric region and slight peristaltic restlessness of the stomach, an operation, usually gastro-enterostomy, is indicated. In duodenal ulcer the clinician must advise surgical treatment sooner than in gastric ulcer, as the former, through its complications (hemorrhages, perforations, stenosis of the pylorus) endangers life much more readily than the latter. Gastro-enterostomy in these cases is fortunately attended with good results. The ulcer will then soon heal as the gastric juice no longer flows over the ulcerated surface in the duodenum or irritates it. At all events, the dangers of hemorrhage, perforation and pyloric stenosis are thereby prevented.

Congenital Morphinism: Oscar Jennings in the *Journal of Inebriety* calls attention to the question of congenital morphinism, which has hitherto attracted little attention, but which is one of considerable importance in that the lives of the children of morphinized

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times a day. Du Broglis, an officer in the French Colonial Medical Service, employed rest in bed and bandaging of the affected parts in conjunction with the iron. Rossiter, however, made but little use of bandaging and allowed his patients to continue their work. He found that the treatment was decidedly efficacious in diminishing the size of the affected parts and that it was particularly serviceable in reducing the frequency of the attacks of elephantoid fever. He is inclined to think that the routine use of the remedy in districts where the disease is endemic would prevent it.

Atoxyl: The *Medical Record* for July calls attention to atoxyl, a new arsenic acid compound which has recently been brought to the attention of the profession as a remedy for sleeping sickness and syphilis. As so often happens when a new drug is introduced, its advantages first attracted attention, and it was only after a most extended trial that the untoward effects became manifest. Among the injurious effects of this drug which have been recently observed is a peculiar form of blindness. Paderstein (*Berlin, Klin. Wochenschrift*) reports two cases of atoxyl amblyopia and collects the cases in the literature. The condition begins usually after the drug has been taken for several weeks and starts with some impairment of visual acuity with a marked narrowing of the visual field, especially on the nasal side, going on to complete scotoma. According to the severity of the attack, which is in no way proportioned to the amount of drug taken, a central scotoma develops. The disease is always bilateral whatever may be the pathology of the condition; the important point is that this drug, in certain cases, may produce an affection of the eyes which may be but a dimming of a part of the visual field or may result in total blindness.

Diabetic Coma: The *New York Medical Journal* for July 31 quotes Albert Robin (*Journal de Medicine de Paris*) as to the prevention of diabetic coma. When, says Robin, a diabetic is losing flesh and appetite; finds his muscular strength enfeebled; has imperfect digestion; shows cerebral or nervous excitement, or depression; has the odor of acetone in the breath, and has trouble with his breathing, no matter how slight; with Gerhard's reaction of the urine; look upon him as on the verge of diabetic coma and make haste to adopt preventive measures. Stop the antidiabetic diet immediately and entirely; do not bother about the glycosuria; order an absolute diet of skimmed milk, to avoid the action of fatty bodies. This milk diet is for the purpose of nourishing the patient generously and the quantity should exceed three quarts a day. Put the patient to bed and maintain as complete physical and mental repose as possible. Take good care of the stomach, especially guarding against gastric fermentation. Give enough of some alkali to neutralize the acid in the stomach. If magnesia is administered, its laxative action should be moderated by the addition of bismuth subnitrate. Such laxative action is necessary because it is eliminative, but it should be kept within bounds. Pulmonary exhalation will be favored by copious inhalations of oxygen. The skin may be stimulated by friction with a mild liniment and the nervous activity sustained by daily hypodermic injections of a 25% solution of pure sodium glycerophosphate. If the circulation flags, the pulse becoming soft and compressible without acceleration, it is best to resort to caffein orally or subcutaneously. If the pulse is very much accelerated and grows irregular, digitalis should be employed in cardiotonic doses.

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mothers may depend upon its solution. As a general rule the catamenia are suppressed in women who take morphin, the consequence being that they are generally sterile although they sometimes become pregnant. Bize has shown that the milk of a mother taking morphin reveals traces of it and from figures it would appear that the child of a mother taking one gram of morphin would require fractional doses of laudanum to the extent at first of five drops a day, which should be reduced to zero as soon as possible. Bize, strange to say, does not approve of putting the child to the mother's breast, for fear of its continuing the addiction. He points out that it would at any rate be necessary to adopt some other mode of administration whilst waiting for the secretion of milk. Maternal feeding, however, for a time would supply the infant at a critical moment with the required stimulant in the best form. After a few days the child could be weaned—gradually transferred to another nurse—or demorphinized by the temporary substitution of decreasing doses of laudanum.

Malignant Disease: The *Therapeutic Gazette* for July considers the medical treatment of malignant disease and is thoroughly in accord with Gay in the *Boston Medical and Surgical Journal,* that in many, if not in most instances, malignant disease in its initial stage is a local affection and hence if it be thoroughly removed during that period a permanent recovery may be reasonably expected. Medical treatment finds its sphere in those instances which for various reasons have passed beyond the stage in which operative interference can give relief. It is customary for reputable members of the profession to tell such patients that the case is helpless and hopeless, that nothing further can be done, and that the physician's services are no longer necessary. Under such advice the patient naturally turns to charlatans and quacks, who are as eager to filch what money they can as the regular practitioner has been loath to admit that nothing can be done. Physicians should be careful to remember that their patients have more claims upon them than the mere curing of disease, and that the psychic influence is an important factor to be ever borne in mind. It has been Gay's custom for many years to give patients with inoperable malignant disease, and also after operation for malignant disease, Lugol's solution for long periods of time and he states that the method of treatment has, in his experience, produced results which have been distinctly beneficial. He does not go so far as to claim that the growth is arrested, but he seems to think that its progress is materially delayed and cites instances which seem, to some extent at least, to support the views which he expresses. In some cases the doses of the compound solution of iodin which he administers, with or without iodid of potash, have been quite large, as much as 75 drops being given daily for several months at a time. In one cases the patient took the compound solution of iodin almost continuously for 15 years, and he says that it would be difficult to convince her that the medicine had nothing to do with preventing a recurrence. Cheever of Boston has also employed this method with advantage. Gay feels that these drugs have a beneficial action in certain cases even if the final result is not changed. Statistics in regard to Coley's treatment of inoperable sarcomas with the mixed toxins of erysipelas and Bacillus prodigiosus also show that in a certain proportion of cases good results follow; the cures average about 30% according to some figures and Coley himself believes from 10 to 15% of inoperable cases of sarcoma can be cured in this manner.

Elephantiasis: P. J. Rossiter in the *New York Medical Journal* for Aug. 7, *(U. S. Naval Medical Bulletin)* records his experience with Du Broglis' method of treating elephantiasis by the administration of 30 drops of the tincture of chlorid of iron three

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Department of Pharmacy

Conducted by H. V. ARNY, Ph. G., Ph. D.

Wild Chery Bark: The bark of Prunus serotina subjected to painstaking analysis by Power and Moore *(Proceedings Chemical Society 25, 27* through *Chemical Abstracts 3,* 1529) yielded mandelonitrile glucoside; an enzyme which decomposes the glucoside into hydrocyannic acid (yield of HCN, 0.075%) a trace of volatile oil; two resins; benzoic, trimethylgallic and para-coumaric acids; sugar and tannin.

Sterilization of Cocain Solutions: Lesure *(Journal de Pharmacie et Chemie 27,* 474 and 526 through *Chemical Abstracts 3,* 1669) has given exhaustive study to the question of decomposition of cocain hydrochlorid solutions when sterilized by means of heat. His conclusions are that decomposition, when occurring, is due to alkalinity of the glass container and that 2% to 4% solutions may be safely sterilized at 110-120° C. in glass containers of 50 c.c. capacity, if the alkalinity of the glass does not exceed 3 c.c. of 1/100 n NaOH.

Myrrh: The antiseptic action of myrrh is said by von Bolton *(Zeitschrift fuer Elektrochemie 44,* 211 through *American Druggist 55,* 9) to be due to burserazin, a gray-brown powder, melting at 172° C. and soluble in hot water; on treatment with hydrogen dioxid it gives oxyburserazin. Both substances are said to be radioactive.

Chloroform From Acetone: It has been claimed that chloroform from acetone is not so well adapted to anesthesia as is that made from alcohol, and the reason of superiority of the latter is said to be due to presence of traces (5/100ths of 1%) of ethyl chlorid. *(National Druggist 39,* 209).

Silver Nitrate Stains: The black stains of silver nitrate can be removed by painting with tincture of iodin and then removing the iodin stain with sodium thiosulphate. So says J. M. Edwards *(Critic and Guide,* through *Pacific Pharmacist 3,* 88).

Formaldehyde From Sugar: Interested parties have made capital of the claim of Ramsey *(Analyst 34,* 28) that the boiling of sugar solutions resulted in formation of traces of formaldehyde; the conclusion being that all jams would respond to the formaldehyde reactions. La Wall *(American Journal of Pharmacy 81,* 394) shows that Ramsey's conclusions were erroneous, due to the use of Heyner's formaldehyde reaction, which responds to all aldehydes. The aldehyde resulting from boiling sugar solutions is a trace of furfuraldehyde. La Wall emphasizes the fact that the most reliable and distinctive test for formaldehyde is Rimini's reaction, and that boiled sugar solutions do not respond to this test.

Cimicifuga: H. Finnimore reported a thorough analysis of this drug at the 1909 meeting of the British Pharmaceutical Conference *(Pharmaceutical Era 42,* 146) showing that a watery extract contains hydroxy-methoxy-cinnamic acid (M. P. 228° C.), sugar, tannin, and a crystalline substance melting at 153° C., that the fats extracted with petroleum ether are mixtures of physosterol, with fatty acids; and that the ethereal extract contains a trace of alkaloid. Conclusions which would suggest the very slight therapeutic value of the drug.

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Book Reviews

Treatment of the Diseases of Children. By Charles Gilmore Kerley, M. D., Professor of Diseases of Children, New York Polyclinic Medical School and Hospital, etc. Second revised edition. Octavo of 629 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, $5.00 net; Half Morocco, $6.50 net.

This volume, as stated in the preface, has been prepared for the general practitioner of medicine and yet it can be read with great profit by the specialist in pediatrics. The book is not a compilation of literature, but gives in detail the treatment of the different diseases, which the author from his own experience has found to be most valuable. The fact that the first edition was so soon exhausted demonstrates its favorable reception at the hands of the medical profession. Many valuable additions have been made in the text in this second edition and some parts have been almost completely rewritten. For example, in the section on Hemorrhagic Diseases of the Newly Born, there is an instructive and lengthy discussion on the use of transfusion.

The chapter on Hygiene and General Care of the Mother and Baby comprises 45 pages of valuable information. It should be read not only by every physician but by every nurse whose duty it is to care for children. However, in a book on the treatment of diseases in childhood a chapter on the Bearing of Dental Caries, Oral Sepsis as a Result of Diseased Teeth, and the Disturbing Effects on Nutrition of Malocclusion of the Teeth, would be welcomed. Infection of the cervical glands, interference with the general health, mild grades of general sepsis and perhaps nephritis probably often result from diseased conditions within the mouth. The school doctor is learning today how much dental diseases may handicap the child. Still's recent book on Common Disorders and Diseases of Childhood has a notable section on the Medical Aspect of Dental Diseases in Childhood, and it would seem as if the time had come to omit from the pediatric textbook the old chapter on the Diseases of Dentition and substitute a modern one.

Under Nutrition and Growth, the author takes up in great detail the problems of infant feeding and gives full instructions for the preparation of the various foods. He emphasizes the importance of maternal nursing whenever it is possible. When artificial feeding has to be resorted to, he takes particular pains to impress upon the reader the necessity of exerting his energies to the end that the infants under his care may receive as clean a milk as possible, describing fully the various sources of contamination of milk and how these may be avoided. The reviewer would criticize his table of the number of feedings to be given the infant at the verious periods under one year. Thus from the sixth to the twelfth week, he advises eight feedings in 24 hours—a frequency which is unnecessary as practically every child will thrive better on five feedings in 24 hours after the fourth week, and even from birth, as the German clinicians have taught us. The American pediatric teachers seem to cling tenaciously to the shorter intervals in feeding, though a trial of the longer intervals will soon demonstrate the advantages of the latter. The author finds the calorimetric standard of infant feeding of little value except to check excessive feeding. His conclusions are that the standard set by Heubner is too low.

In the succeeding chapters the treatment of the various diseases of children is fully described. His treatment is concisely given, drugs are advised judiciously, and particular attention is paid to the general care of the patient and the hygiene of the sick room. Illustrations are used wherever they are necessary to make the text clear.

An unusual feature of the book, and one to which little attention

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is paid by other writers, is the chapter on gymnastic therapeutics. Here are described in detail various forms of exercise helpful in special pathological conditions, and plates are given illustrating the different forms of exercise and some of the necessary apparatus.

At the end of the book there is an appendix, which gives a list of the various drugs used for external application and internal administration with the appropriate strength or dose for the different ages of childhood.

To such a book as this the general practitioner can turn when troubled about the treatment of a patient and he will always find some valuable suggestions. It can be recommended as perhaps the best textbook on the treatment of the diseases of children that has yet been published in English, though Jacob's Therapeutics of Infancy and Childhood fills also an indispensable place. J. P.

Hand Book of Diseases of the Rectum by Louis J. Hirschman, M. D., Detroit, Mich. Fellow American Proctologic Society: Lecturer on Rectal Surgery and Clinical Professor of Proctology, Detroit College of Medicine; Attending Proctologist, Harper Hospital; Consulting Gynecologist, Detroit German Polyclinic; etc. With 147 illustrations, mostly original, including two colored plates. C. V. Mosby Publishing Co., St. Louis, Mo.

When asked what was the best way to become a specialist in skin diseases, Sir Erasmus Wilson, the eminent English dermatologist, replied, "Write a book."

The author is a specialist. He gives us his own views, based upon his individual experience. There is very little padding taken from the works of other authors. He is fully impressed with the importance of his subject and with the facts that the teaching of proctology is left to the chair of general surgery in most medical colleges; that the young graduate leaves his Alma Mater with a hazy idea that occasionally patients may suffer from piles, or fistula and that an operation may be necessary.

In the second chapter, the symptoms which call attention to the rectum are given very clearly, and prove how important careful attention to this organ and its function are to the general practitioner. The directions for the examination and diagnosis of the case, are given clearly and fully illustrated.

The examination and operative treatment of the deep rectum and sigmoid are made to appear much easier than those who have not had special experience and skill will find it.

Separate chapters are devoted to the common affections, such as anal fissure and ulcer, fistula, hemorrhoids, and that most common and troublesome symptom, pruritus ani.

The author advocates the use of local anesthesia in rectal operations, more generally than surgeons are accustomed to do. His method is to anesthetize the integument with a drop of pure carbolic acid, or with an ethyl chlorid spray, and inject through this point one-half of one per cent solution of eucain lactate, care being taken to inject the first 10 or 15 drops just underneath the skin, along the incision, so as to form a wheal or welt. An incision is then made through the skin, and the subcutaneous tissues are then infiltrated with one-tenth of one per cent solution of chloretone, or sterile water. He sterilizes his solution for each operation, and cautions against injecting the solution too quickly. He is careful to make the necessary area of infiltration through *one* puncture of the skin. He cautions, however, against using local anesthesia in any operation requiring over 20 minutes for its completion.

A chapter on dysentery and its treatment is contributed by John L. Jelks, Memphis, and one on the feces and their clinical examination, by George W. Wagner, Detroit. C. B. P.

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Atlas and Epitome of Ophthalmoscopy and Ophthalmoscopic Diagnosis. By Professor Dr. O. Haab, of Zurich. Edited, with additions, by George E. deSchweinitz, M. D., Professor of Ophthalmology, University of Pennsylvania. Second revised edition. With 152 colored lithographic illustrations and 94 pages of text. Philadelphia and London: W. B. Saunders Company, 1909. $3.00 net.

Atlas and Epitome of External Diseases of the Eye. By Professor Dr O. Haab, of Zurich. Edited, with additions, by George E. deSchweinitz, M. D., Professor of Ophthalmology, University of Pennsylvania. Third Revised Edition. With 101 colored lithographic illustrations on 46 plates and 244 pages of text. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, $3.00 net.

These two books filled a well defined want when they were first published a few years ago. They still meet this demand and their continued and well deserved popularity is attested by the publication of a new edition of each. The subject matter has been brought up to date and some new chromo-lithographs have been added to each. These volumes have proved of great value both to those who study and those who teach ophthalmology and no doubt these new editions will continue to be equally valuable. The reviewer takes occasion every year to show and recommend them to the students who come under his service as adjuvants to their clinical experience. Not only are the books excellent as to illustrations and subject matter, but they are published at a very reasonable price so that they readily come within the reach of medical students, while the majority of other atlases are so expensive that the price is prohibitive to most students and many physicians. W. E. B.

Lectures on Hysteria, by Thomas Dixon Savill, M. D., London. Physician to the West End Hospital for Diseases of the Nervous System, Examiner in Medicine in the University of Glasgow, Assistant Physician and Pathologist West London Hospital, etc. Publishers, William Wood & Company, New York.

This attractive volume consists of eleven lectures delivered by Dr Savill at the West End Hospital, London, and embodies the views he has taught for the past twenty years. He has had large clinical opportunities for studying hysteria in its various phases and his manner of investigation is not only painstaking but unique.

His work, while interesting, does not prove anything and his conclusions are not in accord with the best authority on the subject. He claims to have found nothing to support the view that celibacy is a contributing factor and denies the psychogenic origin of the disease.

The pathology of hysteria from his viewpoint depends upon an unstable vasomotor system and he classifies the malady as an angioneurosis. He describes certain surface areas (psychogenic zones) and pressure over these areas, he states, will provoke an hysterical seizure.

The book, however, contains ~~many~~ helpful suggestions and is well written. H. H. D.

Vaccine and Serum Therapy, Including Also a Study of Infections, Theories of Immunity, Opsonins and the Opsonic Index, by Edwin H. Schorer, B.S., M.D., Assistant Professor of Parasitology and Hygiene, University of Missouri, formerly Assistant Rockefeller Institute for Medical Research, New York City. C. V. Mosby Co., St. Louis, 1909.

The literature on immunity during the past quarter century has grown so voluminous that the busy practitioner has not been able to keep pace with the developments on this subject. As a result of these studies new methods of specific treatment were made possible and in this book

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the attempt has been made to furnish to the medical profession information which may lead to a better understanding of the nature of infections and the subjects of immunity, and active and passive immunization. Chapter 1 gives an excellent, brief account of infections and the course of infections. Chapter 2 deals with immunity and the various theories of immunity, devoting especial attention to Ehrlich's side-chain and Wright's opsonin theories of immunity.

In chapters 3, 4, 5 and 6 the technic used in determining the opsonic index, criticisms and modifications of Wright's opsonic index determination, the fluctuations of the opsonic index in health and disease and the nature of opsonin are carefully considered.

The last two chapters are devoted to vaccine and serum therapy and give a critical survey of what is most important as regards these subjects. Due space is devoted to the discussion of serum disease and the question of the advisability of giving immunizing doses of antitoxin indiscriminately is raised. The author seems more optimistic concerning the value of antistreptococcic serum than the usual clinical experience would justify. The necessity of using antitetanic serum prophylactically is rightly emphasized.

The book can be heartily recommended to the profession as one which contains much "meat" on an important subject in very compact form. L. W. L.

The Practical Medicine Series, series 1909. Volume 5. Obstetrics. By Joseph B. DeLee, A. M., M. D., Professor of Obstetrics, Northwestern University Medical School, with the collaboration of Herbert M. Stowe, M. D. The Year Book Publishers, Chicago.

This volume is devoted entirely to obstetrics and forms a summary of the year's progress, as obtained from the best literature on this subject. The author gives a very thorough and systematic review of the leading publications of the past year, presenting in this way the present status of opinion in regard to the various obstetrical problems. After gathering together the latest ideas from other clinics the author frequently discusses their merits and adds his own opinion in a summary. The book shows that the greatest efforts are being put forth along the line of operative obstetrics, and in the investigation of the cause of the toxemias of pregnancy and eclampsia. In regard to the latter nothing definite has been determined, but there is a greater unanimity in favor of immediate delivery as important in the treatment. In the development of operative procedures for delivery it is noteworthy that there is a marked tendency to consider more and more the interests of the child and to replace some of the older, crude and blind procedures with exact surgical methods. Among the operations to receive the most attention are pubiotomy, vaginal Cesarean section, abdominal cervical Cesarean section, and transperitoneal Cesarean section. Under anesthesia in labor favorable results are reported from the use of scopolamin-morphin. "The physical culture of the puerperium" is given some attention and the proper time for getting up is discussed. A. H. B.

Human Physiology, an Elementary Textbook of Anatomy, Physiology and Hygiene, by John W. Ritchie, Professor of Biology, College of William and Mary, Virginia. Illustrated by Mary H. Wellman. World Book Company, Yonkers, N. Y.

This elementary work of 362 pages is adapted for the teaching of physiology and hygiene in the advanced grades of the grammar school, particularly the eighth grade. Sufficient anatomy is presented to make clear the broader outlines of the human body and sufficient physiology to make clear its laws. In addition much up to date new matter; for example, the cell idea, the work of enzymes, and matter relating to germ diseases, has been incorporated.

The reviewer has read this book with care and was pleased to note how a subject ordinarily difficult for a child and ordinarily presented to

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children in unrelated fragments has been written in terms of wonderful simplicity. Linking the work with nature study are the paragraphs on comparative anatomy. Very valuable and well written are the paragraphs upon correct posture, care of the eyes and ventilation. The chapters upon the abuses of alcohol and tobacco are sufficiently impressive, but not a mass of exaggerations to which the rest of the work is subservient which is characteristic of some of our latest school physiologies. The work is well illustrated and is full of common sense, practical hints and suggestions.

L. W. C.

The American Pocket Medical Dictionary. Edited by W. A. Newman Dorland, M.D., editor "The American Illustrated Medical Dictionary." Sixth revised edition. 32 mo of 598 pages. Philadelphia and London; W. B. Saunders Company, 1909. Flexible morocco, gold edges, $1.00 net; thumb indexed, $1.25 net.

This compact little volume contains a surprising number of words when its small bulk is considered. The definitions are necessarily as brief as is consistent with clearness, the pronunciation is indicated, but to economize space the derivations have been omitted. As in the larger edition by the same author, preference is given to the simplified forms in spelling, thus the diphthongs, when possible, are eliminated and many words formerly compounded are now combined, the hyphen being omitted. The inclusion of certain tables of the muscles, nerves, etc., requires a considerable expenditure of space—an important point in such a work —but is probably justified by the greater completeness conferred. This, the sixth edition, has been brought up to date by the addition of a number of the newer terms. The paper, while thin, is perfectly opaque and satisfactory, the typographical work is excellent and the soft red leather binding gives the book a very attractive appearance.

Manual of Therapeutics. Referring Especially to the Products of the Pharmaceutical and Biological Laboratories of Parke, Davis & Company, Detroit, Mich.

The greater part of this handbook takes up in alphabetical order the various therapeutic agents in use today. The properties, uses and doses of each are given and then follows a list of all the firm's preparations which contain it. This last feature will enable the practitioner to select a formula for a ready-prepared compound which is most suitable for a particular case and will save him time in looking through a list of preparations in which, as ordinarily printed, the names of such special compounds may convey no idea as to their ingredients. Theoretically, of course, the physician should possess enough individuality to write his own prescriptions, but the popular demand for tablet medicaments and the ease in dispensing ready made tablets has led to the abandonment, to a great extent, of prescription writing.

Some 56 pages are devoted to therapeutic suggestions, the various conditions requiring treatment being arranged alphabetically and under each being given a list of those remedies commonly employed. A number of tables and a quantity of miscellaneous useful information are also included. This little volume should prove very useful to the practitioner and reflects credit on the firm that has had it compiled. The book will be sent free upon request.

In our last issue the review on Diseases of the Bones and Joints, by Goldthwaite, Painter and Osgood did an injustice to the publishers, Messrs. D. C. Heath & Company, Boston, in stating that "the volume is only fairly well bound." The matter having been drawn to our attention, the book was submitted to an impartial, expert, bookbinder who assured us that it was exceptionally well bound, and that the press-work and cuts were well executed. The volume can be seen at the Cleveland Medical Library to which this copy has been presented by the reviewer. —(Ed.)

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Acknowledgments.

Medical Jurisprudence, Forensic Medicine and Toxicology. By R. A. Witthaus, A. M., M. D., Professor of Chemistry, Medical Jurisprudence, and Toxicology in Cornell University, and Tracy C. Becker, A. B., LL. B., Counsellor at Law. Professor of Criminal Law and Medical Jurisprudence in the University of Buffalo. Second edition. Volume three. Wm. Wood & Co., New York.

Neurasthenia. By Gilbert Ballet, Professor agrégé à la Faculté de Médecine de Paris, Médecin de l' Hôtel Dieu, Président de la Societé de Neurologie. Translated from the Third French Edition by P. Campbell Smith, M. D. Illustrated with seven figures. Paul B. Hoeber, New York.

Immunity and Specific Therapy. By W. D'Este Emery, M. D., B. Sc., London, Clinical Pathologist to King's College Hospital and Pathologist to the Children's Hospital, Paddington Green. Formerly Assistant Bacteriologist to the Royal Colleges of Physicians and Surgeons; and sometime Lecturer on Pathology and Bacteriology in the University of Birmingham. Illustrated. Paul B. Hoeber, New York.

The Sexual Disabilities of Man and Their Treatment. By Arthur Cooper, Consulting Surgeon to the Westminster General Dispensary; Formerly House Surgeon to the Male Lock Hospital, London. Paul B. Hoeber, New York.

The Open-Air Treatment of Pulmonary Tuberculosis. By E. W. Burton-Fanning, M. D. Cantab., F.R.C.P. London; Physician to the Norfolk and Norwich Hospital; Honorary Visiting Physician to the Kelling Open-Air Sanatorium. Second edition. Paul B. Hoeber, New York.

A Practical Treatise on Rectal Diseases, Their Diagnosis and Treatment by Ambulant Methods. By Jacob Dissinger Albright, Philadelphia, With 32 plates, four of which are in colors, and 39 illustrations throughout the text. Published by the author, Philadelphia, Pa.

The Malarial Fevers, Haemoglobinuric Fever and the Blood Protozoa of Man. By Charles F. Craig, Captain, Medical Corps, U. S. Army. Illustrated by four colored plates, 25 clinical charts and 28 photomicrographs and drawings. William Wood & Co., New York.

Manual of the Diseases of the Eye for Students and General Practitioners. By Chas. H. May. With 362 original illustrations, including 22 plates, with 62 colored figures. Wm. Wood & Co., Publishers, New York.

The Principles of Pharmacy. By Henry V. Arny, Ph. G., Ph. D., Professor of Pharmacy at the Cleveland School of Pharmacy, Pharmacy Department of Western Reserve University. Octavo of 1175 pages, with 246 illustrations, mostly original. Philadelphia and London: W. B. Saunders Company, 1909.

Third Report of the Wellcome Research Laboratories at the Gordan Memorial College, Khartoum. Andrew Balfour, M. D. Published for Department of Education, Sudan Government Khartoum, by Bailliere, Tindall & Cox, London. Toga Publishing Co., New York City.

McGill University Annual Calendar, Faculty of Medicine and Department of Dentistry. Seventy-eighth Session. 1909-1910.

Northwestern University Bulletin. Annual Catalogue of the Medical School. 1909-1910.

U. S. Bureau of Plant Industry, Bulletin No. 139.

Bulletin of Barnes Medical College, St. Louis, Mo.

Pennsylvania Health Bulletin.

Public Health and Marine Hospital Service Reports, 1909.

Reprints by:

Lee M. Hurd. M. D., and Jonathan Wright, M. D., New York.
Samuel G. Dixon, M. D, Ardmore, Pa.
Wm. H. Welch, M. D., Baltimore, Md.

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Medical News

Walter H. Merriman of this city, who has been abroad for some time, returned recently and was married in Chicago to Dr. Cliffe Updegraff Johnson of Oberlin They will take an extended tour in Europe.

F. S. Clark, who recently was operated upon for appendicitis, is now convalescent.

I. J. Biskind has opened an office at the Osborn building.

Three internes of the Huron Rd. Hospital were dismissed August 25, for insubordination.

The action of the Ohio State Board of Medical Registration in revoking the license of J. B. Colton of this city, has been sustained by the Governor and the Attorney General of Ohio.

The Lakeside Hospital Medical Society met Wednesday, August 25. The program was as follows: Presentation of a Case of Echinococcus Cyst of the Liver, and a Case of Intestinal Obstruction in an Adult due to Intussusception of the Small Bowel, I. H. Fuhs; Presentation of a Case of Cardiac Dilatation Simulating Hydropericardium, R. Dexter; Report of a Case of Diverticulitis of the Colon with Presentation of Specimen, and a Case of Large Uterine Fibroid with Exhibition of Specimen, H. G. Scranton; Presentation of Pathological Specimens, Obliterative Endarteritis with Multiple Pulmonary Infarcts and Almost Complete Obliteration of the Abdominal Aorta, R. Dexter.

Joseph Barker of Ashtabula Harbor was recently found guilty of illegally prescribing whiskey as a beverage. Jas. G. Turner, pharmacist, who filled the prescription, was also found guilty by the same court, the judge contending that a prescription given in **bad** faith could not be filled in **good** faith. Each case has been appealed. In the meantime both men have been called before the State Boards to show reason why their licenses should not be revoked.

W. W. Coldham of Toledo is spending the summer at the various European clinics.

S. D. Foster of Toledo returned from New York August 19, where he had been taking a postgraduate course in surgery.

W. A. Humphrey, C. N. Smith and N. W. Brown of Toledo were in Rochester, Minn., the middle of August, attending the clinics of the Mayo brothers.

The Academy of Medicine of Toledo and Lucas County, under the direction of Jas. A. Duncan, president, is pursuing a very active campaign for membership. It is expected that the list will be increased to 250.

Mayor Brand Whitlock of Toledo, on August 17, appointed five of his political retainers to the Board of Health, ignoring the recommendations of the "Healthier City" Committee. This committee represents the Academy of Medicine of Toledo and Lucas County, the Homeopathic Medical Club and the Business Men's Club in a fight for better management of the health conditions of that citv.

Army Medical Corps Examinations: The Surgeon General of the Army announces that the War Department has appointed a permanent board to meet at Washington, D. C., for the preliminary examination of applicants for appointment in the Medical Corps of the Army in addition to the usual preliminary examination boards that are assembled at various Army posts throughout the United States from time to time. The board at Washington will probably hold its first session about September 7, 1909, and on such other dates thereafter as may be designated by the Surgeon General.

Physicians who are successful in the examinations by the Washington board will be given employment at Army posts, as their services are needed, as First Lieutenants, Medical Reserve Corps—salary $2,000 per annum—until the next session of the Army Medical School, when they will be ordered to attend the School as "student candidates."

Full information concerning the examination can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C."

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Roswell Park of Buffalo will address the Academy of Medicine of Toledo and Lucas County October 1.

Curtiss Cross and wife of Ashtabula have returned recently from Rochester. Minn.

The Muskingum County Medical Society met at Zanesville August 11, 1909. The following interesting program was presented: Surgical Treatment of Exophthalmic Goiter, Julius Jacobson, Toledo. Interpretation of Jaundice, C. N. Smith, Toledo. The Need of a Better State Organization, W. H. Snyder, President of the State Association. There was a large attendance from the county as well as from Newark. The following morning a clinic was held at the Good Samaritan Hospital, after which lunch was served to the visiting men by the Sisters.

Fred Schoepfle, Sandusky, has recently been appointed Physician to the Children's Home of Erie County, vice Geo. H. Boehmer, who has gone abroad.

Mansfield has been visited by a severe typhoid epidemic. H. M. Platter of the State Board of Health has been reviewing the situation with the Health Officer. A meeting of the physicians of Mansfield was held at the Southern Hotel to discuss the situation, the chief address being directed by H. M. Platter, who outlined a plan of procedure to stamp out the disease.

Ralph R. Barrett and J. H. McElhanney of Mansfield, together with seven laymen, have been appointed Milk Commissioners with full authority to eliminate any suspicious source of supply.

The Elyria Memorial Hospital monthly staff meeting was held at the hospital July 19, 1909.

R. H. McClure, Elyria, returned August 16 from a trip down the St. Lawrence to St. Anne de Beaupre.

R. L. Morse of Norwalk, spent the month of July in Colorado.

Deaths

Robt. W. Muhleman, Bellaire, Ohio, died July 18, aged 55.
Ernst Jacob, Cincinnati, Ohio, died July 19, aged 45.
Samuel E. Dyke, Spring Valley, Ohio, died July 27, aged 62.
Erskine B. Fullerton, Columbus, Ohio, died July 31, aged 66.
Joseph R. McLeod, Findlay, Ohio, died July 30, aged 75.
J. Emmett Burns, Cleveland, Ohio, died Aug. 17, aged 58.
Charles E. Louth, Cleveland, Ohio, died August 25, aged 66.
Wm. Smith, Van Wert, Ohio, died August 8, aged 87.
Louis J. Eger, Delphos, Ohio, died August 4, aged 41.
Wm. R. Wall, Willoughby, Ohio, died August 7, aged 68.

Eleanor Handmacher, Cleveland, who graduated this year at the Cleveland Homeopathic Hospital College. died August 24, 1909.

Albert H. Marvin, born in Cleveland 1867, attended the Cleveland schools, Hiram College and Cornell University. He graduated in medicine at the Western Reserve University in 1891 and received the degree of M. D. from the University of Pennsylvania in 1892. He spent a year in post-graduate study in Edinborough and Berlin and then returned to take up practise in Cleveland, making a specialty of ear, nose and throat work. For some years he was Lecturer on Rhinology in the Cleveland College of Physicians and Surgeons, and Surgeon to the Throat and Ear Dispensary at the Cleveland General Hospital. He had also been connected for many years with the Jewish Orphan Asylum. He was a member of the American Medical Association, American Academy of Ophthalmology and Oto-Laryngology and the Cleveland Academy of Medicine. For some time he had been in poor health and gave up active practise a few months ago. He died of nephritis July 29, 1909, at Chautauqua, New York. He was one of the leading men in his specialty and his loss is universally regretted.

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The Cleveland Medical Journal

VOL VIII OCTOBER, 1909 No 10

Some Medicolegal Problems, from the Standpoint of the Attorney

By ALEXANDER HADDEN, Judge of the Probate Court, Cleveland

Some years ago, I chanced to have a spare afternoon in a city whose inhabitants regarded their municipality as a metropolis. To the average transient guest, however, the place appeared to be still in the provincial state. One symptom of its being in that period of its growth, was the tendency of its citizens to boast about certain of its features, as to which those who live in a metropolis are generally utterly indifferent. For example, every one you met called your attention to the area and population of the city. You were constantly being informed of the great number and diversity of its manufactures, the volume of its commerce and its facilities for travel, urban, suburban, interurban, interstate and international. They actually bragged about the number and size of their churches. They pointed with pride to the new, commodious and sanitary public buildings, and to the fact of the adaptation in their size, shape and appointments to the respective purposes for which they were built. (You may guess how far I was from Cleveland.) Their public men came in for a word of appreciation. They defied any other city in the Union to show such a brilliant corps of physicians and surgeons. They even cracked up their preachers, and in the glow of municipal egotism, an enthusiastic boomer would now and then utter a guarded word in praise of its bench and bar.

I lunched with a member of the local bar, who was by no means ashamed of his professional associates, and who, being

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aware of the three or four hours of unexpected leisure before me, and feeling under some obligation to entertain me, asked how I would like to see two shows under one tent, and then he went on to say that in their court, which holds the same rank as our Court of Common Pleas, a malpractise case was then being tried. The defendant was a doctor who had practised there over thirty years; he stood very high for his professional efficiency; he was much respected in the community for his public spirit; he always threw his vitality into the service of his patients; he was known as the doctor who never presented or mailed a bill or employed a collector, and never inquired as to the ability of a patient to pay before he undertook a case. So entrenched was he in the affections of the public and of the members of his profession that, when the case was brought, all the doctors of the town, with the exception of two or three, regardless of the schools of medicine to which they respectively belonged, had let him know that anything they could do for him in any way would be done gladly and without fee or hope thereof.

My lawyer friend explained that the case was based on a mistake in diagnosis, a radical, fundamental mistake, and that the treatment given the patient for two or three months under this wrong hypothesis of the trouble, was, of course, the worst thing that could have been done for him; the doctor was then dismissed; another, brilliant but rather vain and erratic, had been called, whose guess as to the nature of the trouble was proved by the autopsy to have been absolutely correct, and who of course claimed that had he been called sooner, he might have saved the patient.

The defendant had retained as his senior counsel one of the best trial lawyers of the bar. He was splendidly equipped for that sort of a case, for in college he had been attracted to the physical sciences, especially anatomy and physiology; and early in his practise had been the attorney for a successful plaintiff in a bitterly fought malpractise case, and the reputation thus made had brought to him many cases of that general nature, so that he had kept abreast of medical science to some extent, and had not lost his grip on fundamental and technical knowledge which is usually possessed by physicians only. He was a born fighter; he loved the collision of a trial, and he was the master of all the arts of the legal arena, and could cut and parry and feint and thrust with the best.

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The plaintiff's attorney had lived in the court room almost a generation. While classically educated, he was not a pedant. He was a master of the best colloquial English. He knew all the wiles of the successful advocate and could practise them with consummate art. But he lacked the technical knowledge of the subject matter of that case which was possessed by his antagonist. He was a man of greatness of spirit, imperturbable good nature and good humor; when righteously indignant his wrath was terrible, but he was proof against irritation, and no one ever saw him when he was cross. When he sought to introduce testimony, and it was objected to, he argued the objection in such a way that if it were sustained and his testimony ruled out, the jury had a pretty good idea of what the testimony was, and from that time on generally reasoned and acted as if it were legitimately in the case. When he objected to testimony that he knew would be harmful to him, his argument against its admissibility was so ingeniously turned against its weight, that when his objection had been overruled and the testimony given, its force had been broken and its effect dissipated. A not unpleasant voice, a bright and laughing eye, an indescribable charm which, for want of a better name, we generally call "manner"—these things, with his other qualities, in some way, no one could tell how, enabled him to get the jury and bystanders to wishing him and his client well, and to become their partisans without being able to tell why they felt so.

In the matter of expert medical testimony, the defendant had by far the best of it. The family physician of nearly every man on the jury had gone upon the stand and testified that the mistake in diagnosis was one that any amount of knowledge, care, skill and investigation could not have absolutely prevented; that the tests the defendant had applied were all of those known to the profession in such a case, and that the results thereof, as he had found them, made his conclusions as to the nature of the trouble and disease, as logical and reasonable as would have been the theory of his successor, because the symptoms of the two diseases or troubles were all so much alike. There was no infallible way of distinguishing between them, (unless the doctor had accepted Mr. Dooley's advice and had the postmortem before the death). So many first class medical men offered themselves as experts, that the defendant's attorney had been laboring under the embarrassment of riches in making his selection. Soon after

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I entered the court room, the cross-examination of one of the defendant's experts began. Plaintiff's attorney produced a very new-looking, red, cloth-bound book, of apparently two or three hundred pages, something of the size and shape and general appearance of Maudsley's little work on "Responsibility in Mental Diseases," a copy of which was given me by a physician shortly after he found that I was appointed Probate Judge, and which I took as a delicate hint that my primary education along that line should begin. It was evidently a new weapon, for he asked the doctor if he had read it. "Never heard of it," was the answer. "You know the author?" "No." "Heard of him?" "May have, but don't recall him." "Well," said the good-natured cross-examiner, "let's see if you and he agree." Then he opened the book to a page on whose margin I could see, from where I sat, heavy pencil lines, and he began: "It is not true, doctor, that," and then followed a sentence or paragraph apparently literally quoted from the book. The expert had excellent poise; he was entirely at home; his knowledge was encyclopedic, and it evidently had been experimentally obtained. His answers were prompt, clear, incisive, luminous. He cheerfully admitted whatever was read from the book which he believed to be accurate. He clearly pointed out anything he believed was not true, and to my mind demonstrated that the book, so far as it was quoted, was written by a man of one idea, or at least of an inadequate comprehension of the difficult and intricate subject which appeared on its title page. The cross-examiner made no progress. Instead of "cornering" the witness, he found himself slowly but surely and firmly being pushed backward. His questions didn't discomfit or confound. They only served as opportunities for the witness to illustrate the principles he had enunciated in his direct examination; and as the cross-examination ended, defendant's attorney, gazing at plaintiff's attorney over the top of his glasses, across the trial table, said: "Ah, my brother, you cannot obtain a comprehension of these mysteries by a few days' cramming."

The plight of the plaintiff's lawyer in that juncture of that case is apt to be the plight of every lawyer, in every case the subject matter of which is the human body or mind, their development, their diseases, their mishaps and their decay. He is on the edge of what is to him a forest, a wilderness hundreds of miles in extent. From where he stands he can see a little of its

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circumference and a short way towards its interior. He has not the time even to go around it, and at the same time keep his own field well explored. Much less has he the time or opportunity or preparatory education or the strength to travel once across it. What a mistake he makes, then, if he infers that what he does not see is in all respects like what he does see; that if the ground where he stands is hard and level, to infer from that fact there are no swamps or ponds or lakes or hills or mountains or gullies or abysses beyond the line of his vision.

Perhaps with a faithful guide, he may make a few short excursions into some parts of it, and he is fortunate indeed if he comes out with a clear knowledge and memory of the things he has seen and heard therein. A *terra incognita,* indeed, he has seen. A nomenclature unlike anything he ever heard or read before anywhere has been used to inform him as to the names and natures of the objects and growths which have been exhibited to him. These excursions, to the busy practising lawyer, are necessarily short; for I have no doubt that as the trial of which I have spoken drew to its end, the plaintiff's attorney found at his elbow his clerk or a client, announcing that another court and another jury were ready and waiting in another court room to take up another case just as important to client number two as the one just being finished was to client number one; and as the burden of the responsibility of case number one was lifted off his shoulders, he had but a brief respite to enjoy the sense of relief before the consciousness of burden number two came upon him; and his ability to try case number two as it deserved to be tried depended upon his ability to shut the door of the compartment containing what he learned in case number one, to forget it absolutely, at least temporarily, in order that he might give his whole concentrated thought and energy to the new and entirely different subject matter of case number two.

Substantial assistance can be obtained, therefore, by the association of members of both professions under arrangements which are an express admission that the members of each need aid from the other, and each is ready to furnish it so far as it can. Such assistance was rendered the legal profession, I am able to testify from personal experience, by the society known as the Medico-legal Section of the Cleveland Medical Association, which was organized on the initiative of physicians on April 26, 1894. The purpose for which it was organized, as its record discloses, was

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the investigation of all subjects embraced by the scope of medical jurisprudence, namely forensic medicine, etc., divided into the following subjects:

1. Questions affecting the civil rights or social duties of the individual.
2. Injuries to property.
3. Injuries to the person.
4. Circumstances affecting the health of the individual.
5. Circumstances affecting the health of the community.

I have gone over the record of the society from the beginning to the end, and have selected some of the topics, out of the discussion of which the legal profession obtained real aid. They are as follows:

1. The discrimination of human blood from that of lower animals by means of the microscope.
2. Advisability of legal control at an early age for the treatment of insanity.
3. Inebriety as a disease.
4. Heredity as related to legal responsibility for criminal acts.
5. Medical expert testimony.
6. The phenomenon and signs of death.
7. The duties of both professions as to sanitation in cities.
8. Epilepsy in its relation to insanity and crime.
9. Hypnotism in its relation to crime.
10. Alcohol as defense for crime.
11. The scientific and medical treatment of crime and criminals.
12. Privileged communications.
13. Personal identity and the Bertillon method of identifying criminals.
14. The credibility of autopsy in obscure cases of rapid or sudden death.
15. The brain.
16. The degenerate. How shall we know him? What shall we do with him?
17. Inhibitory insanity.
18. Simulation of the neuroses and psychoses in special reference to their diagnosis.
19. Toxicology.
20. The imperative concept.

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21. Felo de se.
22. Traumatic insanity.
23. Segregation of criminal insane.

This list is given in the hope that those who are so fortunate as to be younger than we are, who heard the discussion, may select from them such topics as they would like to be enlightened about. Pleasure and profit in preparing papers on these subjects, and in discussing them, will not be any keener on their part than it will on the part of those of us who were privileged to take this course about ten years ago.

It is one of the hopeful signs of modern times that our professions are coming to a better understanding of each other. It has never helped a court or a jury to a correct judgment or verdict to have the medical men testify in a case and adhere to one definition of insanity, and the court adopt and lay down with an iron hand another and radically different definition.

Perhaps a more striking illustration cannot well be found in the change in the legal profession than the treatment given to a species of insanity by two judges, one on either side of the Atlantic and divided in time by several decades of years. The kind of insanity before each court was that in which the victim had sufficient mental capacity to know the difference between right and wrong, and knew at the time that he did the particular act for which he was being tried, that it was wrong, but was impelled to commit it by an impulse which he was then unable to control. The English judge refused to recognize this as insanity; he did not discuss it pathologically; his reasoning was brief and pointed and ran about like this:

"There are three things which are calculated to prevent men from doing the things which they know to be wrong: First, conscience. Second, religion. Third, the law.

It requires the cooperation of these powers to keep the average person from intentionally doing a wrong thing. Shall we deliberately take away one of these remaining influences? Shall we paralyze the power of the law, and leave conscience and religion to do the work unaided? The question answers itself."

Now let us turn to the treatment of this same subject by an American judge at a later time:

"It will not do for the courts to dogmatically deny the possible existence of such a disease, or its pathological and psychical effects, because this is a matter of evidence, not of law, or judicial cognizance. Its existence, and effect on the mind and conduct of the patient, is a question of fact to be proved, just as much as the possible existence of cholera or

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yellow fever formerly was before these diseases became the subject of common knowledge, or the effects of delirium from fever, or intoxication from opium and alcoholic stimulants would be. The courts could, with just as much propriety, years ago, have denied the existence of the Copernican system of the universe, the efficiency of steam and electricity as a motive power, or the possibility of communication in a few moments between the continents of Europe and America by the magnetic telegraph, or that of the instantaneous transmission of the human voice from one distant city to another by the use of the telephone. These are scientific facts, first discovered by experts before becoming matters of common knowledge. So, in like manner, must be every other unknown scientific fact in whatever profession or department of knowledge. The existence of such a cerebral disease, as that which we have described, is earnestly alleged by the superintendents of insane hospitals, and other experts, who constantly have experimental dealings with the insane, and they are permitted every day to so testify before juries. The truth of their testimony—or what is the same thing, the existence or non-existence of such a disease of the mind—in each particular case, is necessarily a matter for the determination of the jury from the evidence."

If I had not told you these words were written by a lawyer, and you had heard them for the first time, I am inclined to think you would have doubted whether any lawyer, elevated to the bench and feeling the weight of the responsibility of so stating the law as to conserve the best interests of the community, could have uttered them.

It seems to me that the work of public spirit, unselfish and enthusiastic, can be clearly seen in the decision I have just quoted, and the association which is organized tonight will be of substantial benefit to this community just in proportion as we extend aid to each other in making plain to each other the mysteries of our respective professions.

The Breus Mole.

By A. H. BILL, M. D., Cleveland.

The peculiar malformation of the ovum which is generally known as the Breus mole or hematommole is of interest not so much on account of its pathologic significance as on account of its most interesting and unusual form and development.

The clinical history of the case, the appearance of the ovum both macroscopically and microscopically, its development and formation, and the atypical development of the embryo are so

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characteristic and differ so entirely from those of any other normal or pathologic ovum, that it is generally recognized as a distinct variety of the moles of pregnancy.

The mole was first described in 1892 by Breus in a monograph entitled "The Tuberous Subchorial Haematoma of the Decidua." Breus reported five cases, and laid down the following as their essential characteristics:

1. That there is a marked disproportion between the size of the embryo and that of the ovum, and also a marked discrepancy between the apparent ages of both ovum and embryo, as determined by their size and development, and the period of pregnancy, as obtained from the history of the case. In the most striking of Breus' cases the patient had given a history of pregnancy of 11 months' duration, while the ovum expelled had merely the size of a three months' pregnancy and the embryo had a length of merely 1.5 cm.

2. There is an absence of any circulation between the fetus and the placenta; that is there is an absence of blood-vessels in the chorion.

3. The presence on the inner or fetal surface of the placenta of hematomata which, covered with amnion and chorion, bulge into the cavity of the ovum.

There have been altogether about 35 cases of this mole reported by various writers.

I wish to report and show the specimens of three typical moles of this variety.

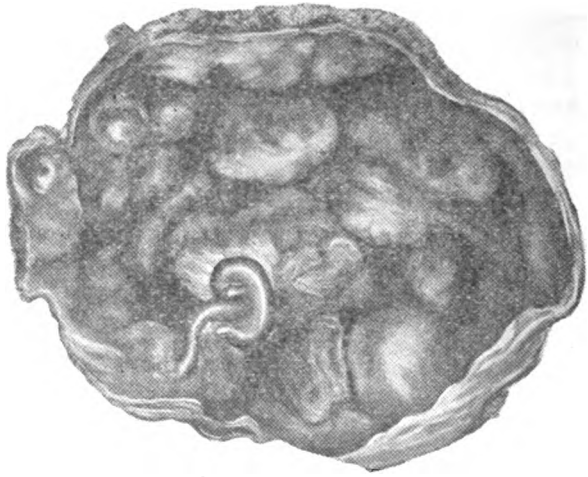
1. The first case is reported through the courtesy of Dr W. T. Howard. It is that of a woman 37 years of age who had previously had nine children. Her previous labors were normal and her past history was negative as to general or pelvic disease. The last menstruation was in August, 1905, the exact date not being remembered. In September and October there was nausea and vomiting and suppresion of the menses. In November there was a slight menstrual flow for one day, which was the last until March 17, 1906, when a moderate hemorrhage occurred and recurred irregularly for one week until March 24, when the ovum was expelled intact. The general health of the patient had been good up to this time and her convalescence was perfectly normal.

The ovum which was expelled measured 5½ x 8 cm., and contained about two ounces of amniotic fluid. The ovum and embryo were in a good state of preservation. The placenta, which was well formed, covered about one-half of the ovum, while over the chorion laeve there were still remnants of decidua. The external appearance of the ovum showed nothing unusual. On the inner surface of the placenta are to be seen numerous spherical and irregularly shaped protuberances varying in size

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from 2-3 mm. in diameter to 2 cm. in diameter. These protuberances project into the cavity of the ovum several mm. to 1 cm., and are covered with the smooth and glistening amniochorion. They are of a dull reddish-blue color. Toward one edge of the placenta is to be seen the embryo, attached by a small umbilical cord 8 mm. in length, the latter apparently being inserted directly into one of the protuberances. On section these protuberances appear as homogeneous, red, partly organized masses of blood, hence the name hematommole.

The embryo is 9 mm. in length, shows marked curving of the body and shows very distinctly the buds of the upper and lower extremities. There is no trace of the umbilical vesicle to be seen. The embryo corresponds in its development to about 3½ to 4 weeks. The ovum in size corresponds to a growth of three months.



Breus Mole, Case No. 1.

Thus we have a history of seven months' pregnancy, an ovum the size of three months and an embryo the size and development of 3½ to 4 weeks.

2. The second case is that of a woman 26 years of age who had already borne two children. The past history, as in the previous case, was negative. The first two pregnancies and labors were perfectly normal and the general condition of the patient was fair, although she was not a very well nourished woman. The last menstrual period was during the last week in February, 1908. After the cessation of the menses there were the usual symptoms of pregnancy, including nausea and vomiting, although the latter was not at all severe. On June 28 the patient menstruated for three days, apparently about as usual and concluded she was not pregnant. After this there was no hemorrhage until August 25, when a flow began, associated with pains. With rest in bed this subsided, but recurred on August 28, when the ovum was expelled intact. As there seemed to be some of the placenta missing from the ovum and as the hemorrhage did not cease as well as desired, the uterus was curetted

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and some small pieces of retained placenta removed. Convalescence was perfectly normal. The patient had previously shown no toxic symptoms from retention of the ovum.

The intact ovum in this case measured 4½ x 5 x 8 cm. and contained about two ounces of clear straw-colored fluid. On the inner surface of the placenta, which is very well formed, are to be seen the characteristic hematomata, which in this case are considerally smaller than in the previous case. In this case there is also no trace of the yolk sac. The embryo measures 11 mm. in length and is attached by a cord but 7 mm. in length. The embryo shows practically no curving, but the buds of both the upper and lower extremities are to be made out distinctly. The eye is also to be made out.

The age of this embryo is evidently about four weeks. The ovum corresponds in size to about three months. The history of pregnancy is that of six months' duration.

3. The third case is that of a primipara 19 years old. The general health of the patient was good and the previous history negative. Menstruation was always somewhat irregular, usually varying from every three to every four weeks. No history of any uterine or pelvic disease could be obtained. The last menstrual period was Nov. 24, 1908. Beginning the latter part of December and during the first half of January there was morning sickness. During the first week in February there was a menstrual flow for two days. On April 25, 1909, there was again flowing, continuing until April 28, when pains started and the patient expelled the ovum and embryo. The ovum had previously ruptured and the fluid had escaped. The uterus was curetted and some shreds of placenta removed. The patient got up from bed and went to work in a restaurant the next day regardless of orders, but made an uneventful recovery in spite of it.

The placenta in this case measured about 5.5 x 7 cm., so that the whole ovum was apparently about the same size as the two previous ova. The inner surface of the placenta is somewhat more irregular than in the other cases and the protuberances are larger. The embryo is only 5 mm. in length and is apparently somewhat malformed. Very little can be made out in regard to its development macroscopically, but it probably did not live more than three weeks, as determined by its size. As in the other two cases there is no trace of umbilical vesicle.

Microscopical examination of sections of the mole, including the hematomata, shows the following:

The amnion and the superficial chorion, that is that over the surface of the placenta, and also the chorion laeve are practically normal. The protuberances themselves are made up almost entirely of blood in a more or less advanced stage of organization, while there is occasionally seen a trace of a dead chorionic villus in this mass.

The primary villi of the chorion show comparatively little tendency to branching and there is a noticeable scarcity of secondary villi in these areas, those present being in a more or less marked stage of degeneration.

Upon examination of the secondary villi a striking feature is the condition of the epithelium which, over the best-preserved villi, consists

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of but one complete row instead of the two rows of Langhans' cells and syncytium which should be present at this stage of development, and this in places is very low and in others entirely absent. It is noteworthy that over the part of the villi devoid of epithelium there is a deposit of fibrin, and the villi, entirely devoid of epithelium, are seen embedded in fibrin, while around those with intact epithelium there is free uncoagulated blood. Some beautiful examples are seen of villi only partially devoid of epithelium on which there is a heavy deposit of fibrin over the denuded area alone, while the remaining part floats free in the blood. These areas show the similarity between the epithelium of the villi and the endothelium of the blood-vessels in their function of allowing blood to flow over their surfaces without coagulation, a fact very important in the early formation of the placenta.

In the chorionic villi no traces of blood-vessels are to be found, thus a fetal circulation has, of course, not been established.

Another noticeable feature is the persistence of the trophoblasts, which appear occasionally in isolated groups, but for the most part near the decidual surface and in intimate relation with the decidual vessels, which they are apparently opening up. As they evidently do this in part at least, independently of the villi there results a diffuse flow of blood into the intervillous space.

The decidua compacta shows few abnormal changes; the chief change being a slight degree of round-cell infiltration.

The fact that the age of the embryo in these cases corresponds so nearly with the usual time of vascularization would lead to the idea that the sudden cessation was due to the death of the embryo, and it is noteworthy that in all cases of the Breus mole reported the embryos have died before vascularization of the chorionic villi has been accomplished. It is also of note that in none of the cases has the umbilical vesicle been observed, and since this must be the chief source of nutrition of the embryo, its absence may have a bearing on the death of the embryo.

Various theories have been advanced in explanation of the formation of these hematomata. Thus Breus explained their formation by an outpouring of blood from the decidual vessels into preformed sac-like folds of the amniochorion, and thought that this folding was brought about by a disproportionate growth of the membranes after the death of the embryo, at the same time claiming that in the death of the embryo lay the ultimate cause of all.

Davidson attempted to explain their formation by the presence of an hydramnios at an earlier stage in the course of the pregnancy, the fluid having been absorbed later on, thus leaving a considerable diminution of pressure within the sac and a consequent tendency to an inward bulging.

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Bauereisen declared the direct cause of the formation of the hematomata to be the stoppage of the outflowing blood by detached chorionic villi which occluded the veins of the decidua. He suggested the name "aneurysmamole," since according to his theory there were really dilatations of blood-spaces rather than extravasations.

Walther suggested an endometritis as the cause of the mole, but in practically none of the cases was an endometritis reported.

The hematomata are apparently formed between the large primary villi in spaces formed by the necrosis and breaking off of the secondary villi. The persistence of the trophoblasts and the progressive opening up of new decidual vessels, often apparently independently of the villi, would lead to the continual addition of new blood-streams. Under the pressure of this blood, increased by the uterine contractions which are going on at this early stage of pregnancy, distention can take place in only one direction, that of the amniochorion which offers the least resistance.

The increase in the size of the hematomata is thus due to a mechanical stretching of the amniochorion and may go on to a considerable extent, sometimes giving them a pediculated or stem-like appearance, a fact of which Breus made special mention.

There is no evidence that syphilis may be a causative factor as in practically none of the cases can a syphilitic history be obtained. Dr O. T. Schultz examined sections of the first specimen for evidences of syphilis and could find none present.

As to the further changes which the ovum and embryo may undergo after long retention in the uterus very little is known. The embryos are usually very well preserved even after 11 months' retention, as shown in one of Breus' cases. Mickolitch reported one case of Breus mole, with the formation of bladder-like sacs in the chorionic villi, giving a picture very much like the hydatidiform mole, the only case of its kind on record; but while there may be a marked edema leading even to the formation of these bladder-like sacs, none of the other characteristics of the hydatidiform mole are shown, there being no tendency toward an excessive growth of the epithelium of the villi but rather a retrogression.

There is no record of any case leading to metastasis or showing any signs of malignancy as in the hydatidiform mole,

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This fact naturally has a distinct bearing upon the treatment that should be followed in these cases.

Symptoms: The clinical picture is that of a "missed abortion." The age of occurrence is less than that of the hydatidiform mole and is usually between 25 and 35 years, that is at the time when abortion is most common. It occurs more commonly in multiparous patients than in primiparae, one case reported being that of a woman in her twelfth pregnancy. The previous history may be entirely negative and usually there is no history of endometritis or of previous abortions, although in one case the patient had aborted four times during the previous year. In Walther's case the patient had previously had two hydatidiform moles, but otherwise there had been no abortions. Taussig saw two Breus moles in the same patient. At first there are the ordinary symptoms of pregnancy, the cessation of menses together with all the subjective and objective signs. But after a long period of amenorrhea there is not a proportional increase in the size of the abdomen, the uterus usually not growing beyond the size of three or four months' pregnancy.

The longest period of retention of the ovum reported was 11 months. In about three-quarters of the cases there was bleeding, often several months before the expulsion of the sac, and occasionally so marked as to be an alarming symptom. The hemorrhage is usually accompanied by pain in the abdomen. The expulsion is usually not accompanied or followed by fever.

Diagnosis: This is usually not made before the expulsion of the ovum as it is difficult to distinguish it clinically from the ordinary retained ovum. In the latter, however, there is often a foul-smelling discharge accompanied by fever and general disturbances, symptoms which have not as yet been observed in cases of Breus mole. The physical signs are directly opposite of those seen in the case of the hydatidiform mole, in which the uterus grows out of all proportion to the duration of pregnancy. A summary of the clinical and pathological characteristics which will serve in the diagnosis is as follows:

1. The marked disproportion between the size of the embryo and the period of gestation.

2. The relative absence of symptoms of intoxication from the long retention.

3. The disproportion between the size of the embryo and that of the ovum.

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4. The presence of the tuberous hematomata, which may be lobulated and have constricted bases.

5. Lack of blood-vessels in the chorionic villi.

6. The poor development of the epithelium of the chorionic villi, which may be entirely absent, the layer of Langhans' cells being particularly poorly formed.

7. The persistence of the trophoblasts.

8. The poor development of the embryo, which usually corresponds in size to that of four to six weeks.

Prognosis: This is good: there is, as a rule, no recurrence, although one case has been reported in which a second hematom-mole was formed within a year. There is no infiltration of the uterine wall by the mole. The only troublesome symptom, the hemorrhage, while in some cases rather severe, has never proved to be a serious complication. The presence of broken off villi in the decidual vessels, which was described by one writer, suggests the possibility of embolism, but this has never yet been observed.

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Perineal Herpes in a Case of Pneumonia in a Child Eight Months Old.

By JOHN PHILLIPS, M. B., Instructor in Medicine, Western Reserve University, Cleveland

Perineal herpes developing during the course of pneumonia is a very unusual condition. Among recent writers Osler[1] and Musser[2] mention that it may occur. Samuel West[3] quotes one case from the literature in which an herpetic eruption appeared about the anus during the course of a pneumonia. The actual percentage showing labial herpes, as given by different authors, varies from 14 to 43. Howard[4] thinks that the most reasonable explanation of the frequency of the nasal and labial herpes, is due to the marked passive congestion, which is so often present, affecting the Gasserian ganglion and was especially noticeable in one of the cases he reported. The same writer reports one case of pneumonia in which herpes was present in the mid-dorsal region on the left side, extending from the middle of the back to about the anterior axillary line, corresponding to Head's sixth dorsal area. Two days before death a similar eruption appeared in the left umbilical and iliac regions (eleventh dorsal area).

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Microscopic examination of the posterior root ganglion of the eleventh dorsal nerve showed hemorrhage, infiltration of round cells, and degeneration of the ganglion cells. No lesions were demonstrated in the posterior nerve roots, in the spinal cord or in the peripheral nerves. He also found similar changes in the Gasserian ganglion in a patient dying on the sixth day of acute lobar pneumonia in whom there was a marked nasal and labial herpetic eruption. Cases have been described in which the herpes have developed upon the arm, the back, upon the cornea and upon the sternum. Wilson Fox, quoted by West, has observed a similar rash upon the tongue, soft palate and tonsils. It usually appears from the second to the fifth day, though it may be delayed until after the crisis. Because of the infrequency of perineal herpes the following case is considered worthy of report:

Ruth E., aged eight months, was admitted to Lakeside Hospital on the medical service of Dr Henry S. Upson, September 30, 1906, with a history of cough and fever. Her maternal grandmother had died of pulmonary tuberculosis. The baby had always been quite healthy with the exception of a cold in the head with some cough at intervals during the past four months, which was evidently due to the presence of adenoids.

Present Illness. For the past three days the child has had fever and cough and has been breathing rapidly. She has refused her nourishment and has had some vomiting. The bowel movements have been normal. There has been considerable loss in weight.

Physical Examination on admission showed the child to be quite well nourished and she did not appear to be extremely ill. The respirations were 60 to the minute and there was very active dilatation of the alae nasi. There was some suppressed cough and the expiration was accompanied by a grunt. A slight mucopurulent discharge from both eyes was noticeable. The ears, nose and throat were normal. The chest was well formed but a slight rosary could be felt. There was slight diminution in expansion over the upper part of the right side of the chest. Over this part the tactile fremitus was increased. On percussion there was marked diminution in resonance over the front and back of the upper part of the right side of the chest and here the breath sounds were bronchial in character, and towards the end of inspiration a few fine crepitant rales could be heard. The remainder of the right and the entire left lung were clear throughout to percussion and ausculation. The heart was normal in size and the sounds clear, but there was quite marked accentuation of the second sound in the pulmonic area.

The abdomen was normal. There was no edema of the shins and the reflexes were normal. The leukocytes numbered 22,300.

The child was given the usual treatment of abundance of fresh air, and stimulation with strychnin and whiskey when indicated. The temperature began to fall by lysis after the seventh day of the disease. The temperature varied from 102° to 103.5° and at times the child was quite cyanotic. The urine showed a slight febrile albuminuria.

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On the third day after admission a marked herpetic eruption appeared upon the perineum to the left of the median line, extending forwards to the posterior part of the labia majora and partially encircling the anus (Fig. 1). Two days later the vesicles were mostly replaced by yellowish crusts. In the course of a week the crusts had nearly all disappeared, leaving an area covered with dusky red papules. According to Cushing the area affected would correspond to a lesion of the posterior root ganglion of the fourth, possibly fourth and fifth, sacral nerves. The child made a very good recovery.

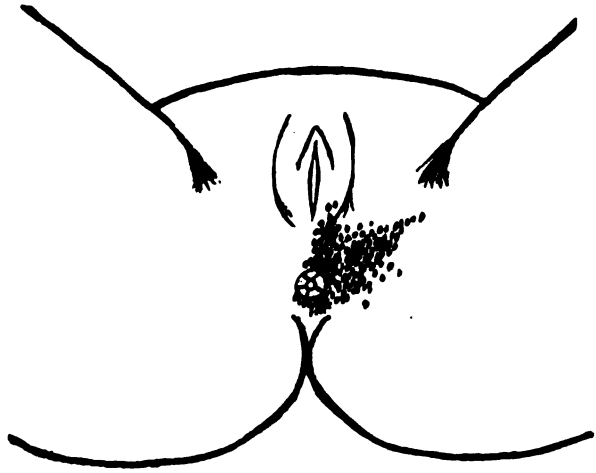


Fig. 1.

It was not until 1861 when the classical paper of Von Barensprung[5] first appeared that herpes zoster was considered to be definitely of nervous origin, and from the results of post-mortem examination he located the lesion in the posterior root ganglion. Until the publication of the admirable paper of Head and Campbell[6] in 1900 there were only two well reported autopsies on cases of herpes zoster in the trigeminal area, one by Wyss[7] in 1871, the other by Sattler[8] in 1875. The former found extravasation of blood into the inner aspect of the Gasserian ganglion, and into the beginning of the first division of the trigeminal nerve, accompanied by a purulent inflammation pushing the ganglion cells apart. In the case of Sattler, a man aged 85, a few days after he was poisoned by carbonic oxid gas, developed herpes ophthalmicus. Death occurred 14 days afterwards and the Gasserian ganglion was found to be infiltrated with round cells, and there was marked destruction of the ganglion cells. Until 1900 there had been five satisfactory reports on zoster of the trunk—Lesser,[9] three excellent cases; Chandelux,[10] one case;

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and one thoroughly studied case by Dubler.[11] These all showed changes in the posterior root ganglia corresponding to the area affected.

Head and Campbell studied 21 cases of herpes zoster in different stages of the disease and associated with various clinical conditions. In a few of these the herpetic eruption was in the distribution of the fifth nerve, the others corresponded to segments at various levels of the spinal cord. The pathologic changes they found may be described under five different headings:

(1) *Changes in the ganglion of the posterior root:* Here they found an extremely acute inflammation with exudation of small, deeply staining, round cells; extravasation of blood; destruction of ganglion cells and fibers and inflammation of the sheath of the ganglion. The lesion was always situated in the dorsal aspect of the ganglion, i. e., in that portion opposed to the anterior root. If not severe the inflammation may pass away, leaving no recognizable change in the ganglion, but in the severer cases permanent changes in the way of scarring, which occupy from one-sixth to one-half of the ganglion, remain. Within this area all the ganglion cells are destroyed and no structure remains to show where they once existed. In a few cases, occasionally healthy ganglion cells may be seen scattered here and there throughout the scar tissue. Over this scar the sheath of the ganglion is considerably thickened.

(2) *Changes in the posterior nerve roots:* From 10 to 11 days after the eruption first appears changes are demonstrable in the posterior nerve roots. The degeneration here is of the usual acute type, with disintegration of the myelin sheath, and if the process is severe fibrous tissue may take the place of the nerve fibers that have been destroyed. If the lesion has been mild the products of acute destruction may disappear leaving no recognizable changes. In one case, however, well marked sclerosis, affecting one-half of the posterior nerve root, could be detected as late as 272 days, and in another case 790 days after the disappearance of the eruption.

(3) *Changes in the peripheral nerves:* The changes in the peripheral nerves probably begin about the same time as the degeneration in the posterior nerve roots and show the same disintegration of myelin sheath and subsequent sclerosis. Both anterior and posterior primary divisions are affected, but the

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number of degenerated fibers is always greater in the latter. The sclerosis once established is permanent and has been shown to exist as late of 790 days after the herpes had disappeared.

(4) *Changes in the spinal cord:* If the cells of the posterior root ganglion are destroyed experimentally we get an acute degeneration of those fibers, which, entering the spinal cord by the posterior root, pass upwards in the posterior columns. Thus, in the inflammatory lesions of the ganglion with destruction of its cells we see a corresponding degeneration of the fibers in the posterior columns, and in cases in which the eruption is on the arm, the degeneration can be followed up to the nucleus cuneatus. The degeneration in the spinal cord appears about the ninth or tenth day after the eruption, and if the lesion is extensive the nerve fibers may be replaced by fibrous tissue.

(5) *Changes in the skin and glands:* A section made through an unruptured vesicle of herpes zoster shows a cavity, the floor of which is formed by naked papillæ. These are in a condition of profound inflammation and are infiltrated with masses of deeply staining round cells. The vesicle is split into incomplete cavities by septa, extending from the roof of the floor. The cavity is filled with fluid which coagulates into a somewhat granular hyaline mass. The lymphatic glands in the neighborhood of the herpetic eruption enlarge and become quite tender.

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Some Points in the Diagnosis and Treatment of Eclamptic Toxemia, with Report of a Vaginal Cesarean Section in the Preeclamptic Stage

By ARTHUR J. SKEEL, M. D., Cleveland

In a recent article I attempted to show some of the advantages to be derived in the diagnosis of eclamptic states by the routine estimation of blood-pressure and leukocyte count in addition to the usual urinary examination.

In the present paper I wish to present further observations along this line and to consider some of the deductions to be made from them.

It has long been accepted as a fact that the pregnant woman, presenting symptoms of eclamptic intoxication, may often be safely carried through her pregnancy by appropriate measures.

In those cases which present early in the disease well marked symptoms, it has for years been the standard treatment to place the woman in bed, on a diet of milk or buttermilk, combined with hot packs and careful elimination from the bowels. More radical methods are advised only when, in spite of active treatment, the patient's condition grows worse or fails to improve.

In some cases the increasing quantity of urine, the diminishing amount of albumin, the disappearance of casts, and the vanishing of edema and headaches, all give satisfactory evidence that the patient is improving.

But many times we have no adequate urinary warnings of the condition, and still more frequently after the diagnosis has been made the urinary examinations do not give satisfactory evidence of the progress of the case. This is just the point of greatest difficulty; to measure, or judge with some accuracy, which patient is in a serious condition; which one is suffering from only a mild grade of poisoning; in which one the viscera (liver, spleen, brain, etc.) are undergoing considerable pathologic changes.

Fry says there is no way to determine the progress of these lesions, that the danger line may be passed early or late, and he urges early evacuation of the uterus on this account. Yet, if we are to advance at all in our treatment of this condition before the actual advent of convulsions, it must be by so accurate a

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study of the symptomatology, that we may from it estimate the grade of toxemia.

The actual occurrence of convulsions, while weighty, is not an absolute criterion for determining the progress of pathologic visceral changes, for the history of many cases shows recovery to occur rapidly and smoothly after one or even many convulsions, and the patient later shows no trace of diseased or weakened viscera. Other patients, either with no convulsions or with only one or two, pass rapidly to a fatal ending, and show postmortem, the characteristic changes in kidneys, liver and brain.

Bumm says that the malignant form of the disease shows itself less through the severity and frequency of the convulsions than through early appearing deep coma, loss of reflexes, fever, scanty urination, etc.

We should perhaps think more accurately of the condition, if we considered the convulsions a very frequent and serious complication of the disease, just as we think of peritonitis as a frequent and serious complication of inflammation of the appendix.

Particular conditions in individual cases may decide the advent of convulsions.

Seitz's statistics show that many cases go on to recovery after a great number of convulsions, and that these cases show peculiar cerebral conditions, being followed by psychoses in many instances.

A study of the so-called hepatic or, as Edgar puts it, cholemic types of eclampsia shows that this class of cases is particularly fatal. This apparently is true, because in this type the outspoken symptoms, like convulsions and coma, occur only after the pathologico-anatomic changes in the liver are far advanced, and because we allow that period in which the patient's life might be saved to pass, while we are treating supposed prodromal symptoms.

The great need for additional diagnostic and prognostic knowledge is emphasized by Williams in the following words, "At present, however, in spite of all we can do, cases of eclampsia will still occur and sometimes even in patients who apparently have responded most satisfactorily to prophylactic treatment. Thus I could cite several instances in which, under appropriate measures, the subjective symptoms disappeared, the urine and its nitrogen content increased in quantity, and the albumin de-

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creased, and yet, just as I was congratulating myself upon a most satisfactory result, a convulsion occurred."

Several years ago I had charge of a case of eclampsia terminating favorably which was distinctly of the non-nephritic type:

Mrs. S., primipara, 27 years old, was first seen by me at her home in a condition of coma. Examination disclosed a six months' pregnancy. The important facts of her history were as follows:

About a month previously, on account of headache, she consulted her physician who examined the urine and found it negative. The headache had persisted. On the night previous to the present attack she had been out to dinner and had eaten heartily and then taken a long walk. Her headache, which was occipital, became worse, and without other symptoms she had, about noon, suddenly become unconscious. Catheterization revealed an empty bladder. I could get no data as to the time of last urination.

Hot packs, cathartics, and saline by rectum were employed and she slowly improved, recovering complete consciousness by the following morning. During the next few days the urine was clear, specific gravity varying from 1015 to 1022. The ring test showed only the faintest trace of albumin. There were no casts. The occipital headache remained severe. The pulse was slow. A consultant, whom I called with the thought of emptying the uterus, advised delay and suggested the possibility of meningitis. However, in a few days she was removed to the hospital and the next morning had a severe, typical, eclamptic convulsion lasting about three minutes. She became unconscious and in two hours had another severe attack.

The cervix was prepared as rapidly as possible and in a few hours the uterus was evacuated.

During the following weeks the headaches improved, the urine became normal in quantity and the albumin entirely disappeared. At the end of this time the rigid diet was somewhat relaxed and the patient was considered convalescent. She was perfectly clear mentally and her reflexes were normal. No edema was at any time present.

At noon of the eighth day postpartum she suddenly developed one of the most severe eclamptic convulsions I have ever witnessed. Indeed at its close I thought she was dying. However, she survived, had no more convulsions and after weeks of slow convalescence, recovered.

In cases of the type just cited our urgent need for earlier diagnosis and better prognosis is illustrated.

In my article previously referred to, I showed that observers on blood-pressure are almost unanimous in declaring it elevated in the toxic condition preceding convulsions, that the leukocyte count is frequently increased, and that ophthalmoscopic examinations not rarely give confirmatory evidence of the condition.

A recent case in my service at St. Clair Hospital shows so many interesting points in the diagnosis and treatment that I will recite it somewhat in detail:

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Mrs. B., French, VII-para, aged 38 years. Her previous pregnancies have been normal in every respect. Her sister died of eclampsia at her first confinement. Her last menstruation appeared in March. She was admitted to the hospital on December 12, 1908. She felt life in August and was therefore in the last month of pregnancy. The urine had been examined regularly by her family physician, Dr Pollock, and had been normal up to three weeks ago. At this time she fell down four steps of a stairs, straining her back. She dates her present illness from that time. Since then she has had more or less backache and some abdominal pain. About two weeks ago she began to notice some disturbance of vision and slight malaise, a little later she noticed some swelling in her legs. She has had no nausea or vomiting and no headaches. Bowels have not been constipated and she thinks the quantity of urine has been normal.

Dr Pollock reports a steadily increasing quantity of albumin during the last two weeks, in spite of active treatment. Examination on admission as follows:

General appearance good, mental condition clear, headache has appeared during last 24 hours. Lungs are normal. Heart shows slight systolic murmur at apex. Pulse 100. No edema about hands and face. Lower extremities show considerable swelling. Pelvic measurements normal. Abdomen enlarged to about size of seven and a half or eight months' pregnancy. Head presenting. Urine showed large number of hyaline and granular casts, and 50% by volume of albumin. Systolic blood-pressure, lying in bed, taken twice, two hours apart, by two different observers, 280 mm. (Stanton apparatus with wide armlet). White cell count (digestion leukocytosis excluded) 21,298. Ocular examination by Dr Shackleton showed exudative retinitis, with marked loss of central vision in both eyes, and no hemorrhages.

Vaginal examination revealed a long hard cervix with a surprisingly small os for a multipara.

On account of the urgency of the signs elicited it was decided to deliver at once. This I did by vaginal Cesarean section.

The fetus was small so that the anterior incision only was used. No hemorrhage of note was encountered. Membranes were ruptured and delivery effected by version. Operative convalescence was uninterrupted. The recovery from the toxemia, however, was quite interesting.

At noon before delivery her blood-pressure was 280 mm.; at 6:00 p. m., one hour after delivery, it was 200 mm.; at 7:00 p. m. 190 mm.; at 9:30 p. m. 175 mm. At 9:00 a. m. the following morning blood-pressure was 180 mm. and white cell count 35,000, showing leukocytosis of delivery. By 4:00 p. m. the blood-pressure had increased to 230 mm. At this time she was bled with the sphygmomanometer in place on the other arm. The instrument showed gradual reduction of pressure and when 10 ounces of blood had been taken the mercury reading was 140 mm. and the patient showed some signs of air-hunger. By midnight the pressure had again risen to 190 mm. The following morning the blood-pressure was 170 mm., white cell count 26,000. On the next day, the third after delivery, with a pressure of 180 mm., a retinal hemorrhage occurred in the right eye.

In order to test its effect sodium nitrite was given, three doses of 10 grains each, six hours apart, by mouth. It reduced the pressure from 180 mm. to 140 mm.

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Its general effect on the patient, however, was poor; she looked cyanotic and expressed herself as feeling very ill. To test whether this was the result of the drug we now administered tincture of digitalis m. xv. By the next day the blood-pressure had again risen to 180 mm. and the patient looked and felt much better. Complete recovery.

I realize that little can be deduced from the results in one case, still the effect of the diminished and increased pressure produced by the drugs, in so far as it is of weight, supports the belief of those who contend that the increased blood-pressure in this condition is a conservative action on the part of nature to produce renal elimination, and that active blood-pressure reduction should be effected, if at all, only with caution.

The special points of interest about the case are:

(1) A sister died of eclampsia.

(2) The patient dates her illness from her accident.

(3) The extremely high blood-pressure, 280 mm., without convulsions.

(4) The occurrence of a fresh retinal hemorrhage after the reduction of the blood-pressure 100 mm.

(5) The air-hunger showing after rapid reduction of blood-pressure by bleeding, although it had not yet reached the normal.

(6) The diminution of urinary secretions with the lowered blood-pressure following the administration of sodium nitrite, and the simultaneous increase of both upon giving digitalis.

(7) The persistence of high pressure and its tardy, slow decrease after evacuation of the uterus. This I interpret to mean that the patient's visceral changes, and probably her toxemia, had reached the limit of even her apparently great resistance.

(8) A small, poorly developed fetus (its appearance was that of about a seven and a half months' child) at nearly full term, probably showing the detrimental effect of the toxins on the child.

During the past few months I have had the opportunity to observe the blood-pressure in four cases of eclampsia and four of preeclamptic toxemia. One of the preeclamptic cases is reported in detail above.

No. 2: Mrs. M., II-para, was seen in consultation with Dr Steuer for delayed labor. Easy forceps delivery. Examination showed large quantities of albumin and casts in the urine. Immense edema of the lower extremities. No leukocyte count made. Blood-pressure four hours after delivery 160 mm. No convulsions.

No. 3: A case of the non-nephritic type. Mrs. B., III-para, a dispensary outpatient, seven months pregnant. Taken with vomiting, dizzi-

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ness and intense frontal headache. Urine normal in quantity and specific gravity, no albumin or casts. Blood-pressure 180 mm. In spite of vigorous treatment at home this increased to 197 mm. when she was taken to St. Clair hospital for treatment. Under a diet of buttermilk, with absolute rest in bed and active elimination this steadily decreased from 197 mm. on Feb. 12, to 118 mm. on Feb. 26, when she was allowed to return home. Improvement was permanent.

No. 4: Mrs. T., age 27, American born, primipara, at seven months began to show albumin and casts in urine with blood-pressure of 165 mm. Some edema about face and hands, and headache. Under active treatment this condition improved, headaches disappeared, blood-pressure was reduced to 140 mm., a trace of albumin and a few casts remained. After about one month, in spite of continued treatment, the albumin gradually increased and 10 days before the expected date of labor it suddenly appeared in large quantities, granular casts were numerous, and the blood-pressure rose to 170 mm. Leukocyte count normal. I induced labor, securing a healthy child. No further trouble was experienced.

Eclampsia cases:

No. 1: Mrs. K., 23 years, primipara, one week before attack urine normal. On date seen by me she complained of headache. Urinary examination of morning specimen showed trace of albumin, at noon considerable quantity. Blood-pressure taken at noon 165 mm. Considerable edema. Ten minutes later while examining eye grounds patient had a convulsion. Prompt delivery by manual dilatation and version. No further convulsions. One week later blood-pressure 128 mm, no albumin or casts. No blood-count.

No. 2: Mrs. R., multipara, seen in consultation with Dr Dunlap, normal delivery 24 hours previously, since which time she had six convulsions. No convulsions for five or six hours before seen by me. Still restless and somewhat delirious. Blood-pressure 147 mm, eye grounds (Dr Shackleton) normal. No further convulsions. Convalescence rapid.

No. 3: Mrs. D., seen by courtesy of Dr Seliskar. Two or three convulsions before delivery; bled one pint. Blood-pressure 12 hours after delivery 157 mm. Two or three convulsions after this time. White cell count normal. Eye grounds (Dr Shackleton) normal.

No. 4: Mrs. ——, II-para. Patient weighing nearly 300 pounds, seen in consultation with Dr Joseph Neuberger. Has been in labor two days in hands of a midwife. Flat pelvis. The dead child was delivered by perforation of aftercoming head. Shortly after recovery from anesthetic had a mild eclamptic convulsion. Blood-pressure taken one-half hour later, 169 mm. Urine very scanty with some albumin and casts for a couple of days.

This series, though short, seems to confirm the statement of Janeway and made the basis of a report by Voegler that a pressure of over 150 mm. is an indication of mischief.

Case No. 3, of the preeclamptic type, is particularly important. The symptomatology was sufficiently clear to leave no doubt as to the diagnosis of preeclamptic toxemia. The urine

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was absolutely normal in quantity and specific gravity, and free from albumin and casts.

It is in just this class of cases that our usual guide, the urine, fails to aid us in a diagnosis or give any gauge of the patient's danger after a diagnosis has been made.

It would be particularly unfortunate in just this class of cases if the blood-pressure also failed to show any marked increase.

This case showed a pressure of 197 mm. with normal urine and leads me to hope that in the so-called hepatic type of the disease the blood-pressure estimation may be of particular value. Further observation on this point is urgently needed.

It is interesting to note in connection with blood-pressure rise in eclampsia that Chirie has recently reported 12 post-mortems in eclamptics in all of which he found marked hypertrophy of the cortex of the suprarenal bodies. The question arises, what, if anything, this condition has to do with the quite constant rise of blood-pressure in eclamptic states?

In conclusion, I wish to again urge the taking of blood-pressure along with the urinary examinations as a part of the routine oversight of pregnant women.

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The Subjective Symptoms of Exophthalmic Goiter.

A Personal Experience.

[At my request a highly trained young physician, suffering from exophthalmic goiter wrote a description of his subjective symptoms. The word picture impressed me so much that I begged the privilege of submitting it for publication.—*George W. Crile.*]

The earliest symptoms of Basedow's disease, from which I have suffered, showed themselves 16 months before the development of the cardinal signs which made the diagnosis apparent.

It was during my second year in the medical school, and while, in addition to my work there, I was playing in the basket-ball squad. The first thing I noticed amiss was a lack of endurance, and that I lost my wind easily, despite the care exercised in training.

I was at a loss to explain my poor physical condition, except for the fact that I had been worried by certain reverses of fortune met with at the time, for the athletic work undertaken was less than that done with ease in previous seasons.

Very little attention was paid to the matter, however, as I thought a short rest would restore my customary endurance. It failed to do so, but nevertheless, I took up again the basket-ball. In the course of the next month I was conscious of losing weight and growing pale.

The pallor was especially noticeable in the morning. On slight exertion I would perspire freely and suffer from palpitation. At night, sweating was often so profuse as to waken me and necessitate changing my night-clothes. At the same time my whole nervous system was becoming irritable. I lost my temper on the slightest provocation, a condition quite new to me. I also became very sensitive and had dark forebodings of the future. I was alive to every criticism and discouraged by mere nothings. My nights were often broken and troubled with dreams.

With all this weakness, irritability and sensitiveness, however, I seemed driven by an unusual ambition for accomplishment in both studies and my athletics. Although my loss of weight and weakness attracted the attention of friends who urged me to rest, I did not resign my position but dragged along until the end of the season.

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Then for the first time I sought medical advice and was given a thorough physical examination. Nothing was found amiss. I was termed a neurotic and advised to rest. A short vacation brought little improvement and as my examinations were fast approaching I tried to take up my books. My mind at this time presented peculiar characteristics. It was on the whole quite sluggish, especially in the memory of names, not so much of things newly learned as of those hitherto familiar. The names of acquaintances, prominent men, common diseases, etc., constantly eluded me. A clear enough mental picture would be present of individual or object but the name could not be recalled without great concentration of thought. My mind would tire after very little study and severe pains would appear in the eyes. Things learned with hard effort would vanish from my waking mind with great rapidity; but the little sleep that did visit me at night would be troubled with dreams of the subjects studied the day before. I was often heard moaning aloud in my sleep. Night sweats continued as before. The days that followed these broken nights were full of physical languor and harrassed by the ambition and feeling of competence to undertake mental efforts which a short attempt to study would show to be impossible.

This sort of thing had now continued six month and as summer was approaching I decided to take a long visit in the country. The quiet out-of-door life brought considerable improvement in both my mental and physical state and with the approach of autumn I thought myself sufficiently on the mend to take up my third-year work at the medical school. However, the increased mental and physical effort led to a gradual return of the old symptoms. There was increasing pallor and progressive loss of weight. Any unusual physical effort gave rise to free sweating, a remarkable increase in cardiac activity and a feeling of vertigo. The palpitation caused me special concern for in many years of addiction to athletic sports I had never been conscious of any cardiac irritability.

Sweating, palpitation and vertigo also resulted in even greater degree from any emotional excitement and trivial causes were enough to give rise to great emotional response.

On rising in the morning my head would be in such a whirl that I could scarcely stagger to the bed for relief.

As a rule my appetite was very poor, with a distressing emptiness and nausea between meals and an occasional severe afternoon

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headache. On some days an enormous appetite would show itself, leading me to take large quantities of food, invariably followed by epigastric distress and belching.

Moisture of the skin, giving rise to a very uncomfortable chilly, slimy, froglike sensation annoyed me much of the time but was replaced often by a flushing of the skin, with an almost intolerable sensation of heat. My friends first called my attention to a change in the color of my hair which from a dark brown had altered to a lighter, dirty shade. Later I noticed that its rate of growth had become noticeably slower.

All these symptoms naturally gave me much concern though I was told that I was suffering from an ordinary attack of neurasthenia; and as my depressed spirits imagined all sorts of serious possibilities the very anxieties thus conjured up seemed to cause an aggravation of all the symptoms. At least at this time, about a year from the first signs of ill health, the more characteristic, textbook symptoms of the disease became manifest, and in the course of the next four months were well established. The first to appear was a diarrhea, weakening and difficult to control. Massive doses of bismuth seemed to check it in some degree but only for a short time. Severe griping pains preceded each loose evacuation. The next symptom in order was an irritation of the urethea on micturition. This was quite marked and caused me much anxiety. The urine was examined but nothing was found to account for the discomfort, which, however, lasted throughout the whole course of the disease and varied in intensity with the other symptoms.

Shortly following the onset of this urethral irritation came attacks of vomiting, the most distressing symptom, perhaps, experienced during the illness. The first attack came on at night. I was wakened with griping pains in the abdomen and had a diarrheal discharge followed by vomiting of very severe type which was uncontrollable for 10 hours, forcing me to take to bed from sheer exhaustion. While in bed, on liquid diet, the vomiting disappeared, but when I left the bed and attempted work it returned. After three weeks of this recurrent vomiting I decided to leave for the country and here with fresh air and a light diet it ended, my general condition meanwhile undergoing a remarkable change for the better which led me to return to the city and again try to take up my work. The feeling of improvement was very temporary and I was soon worse than before, the cardinal symp-

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toms of Basedow's disease becoming evident. The cardiac symptoms were the ones that forced themselves on my attention but I am sure the tremor was present before I recognized its existence for it was brought to my notice when I sought medical advice for the tachycardia and palpitation. That this tremor existed at least a month before the constant palpitation is beyond doubt in my mind. The quivering sensation which accompanied any attempt at fine work, as threading a needle, that I then considered as simply weakness, was quite apparent to me to be nothing more than due to the tremor before unrecognized. The palpitation and tachycardia came on suddenly. While at an evening entertainment and sitting perfectly quiet I suddenly realized that I could feel every beat of my heart and was also conscious of a great increase in rate. This became gradually worse during the next two weeks. I could feel both closures quite distinctly with no aid from the imagination. A cardiac bruit came on and a thrill could be felt over the apex beat. Thinking I was developing a valvular lesion, I again sought examination. No valvular lesion was found but the cardiac force was much in excess. The fine tremor of the outstretched hands was brought to my notice and a goiter was sought for but only a mere suggestion of thyroid enlargement was present. About a week later a small, soft, pulsating goiter was discovered by me on the right side. It seemed to have developed in one night. It steadily grew larger and symmetrical, remaining soft and pulsatile, and when it had reached the size of a small lemon a thrill could be felt.

As the goiter grew, so did the cardiac force and rate increase while the general symptoms seemed to increase in intensity. The exophthalmos developed simultaneously with the goiter. First noticed in the left eye, later the globe seemed to recede almost to normal while the right eye began to protrude.

In the next few days the left eye again became prominent and the bulging remained permanent and equal. Vision was not impaired to any great extent except that the eyes became weak, compelling me to wear glasses for an astigmatism which seemed to be aggravated by the exophthalmos. Great depression of spirits followed these later symptoms, despite the pleasant surroundings of summer in the country. I could neither rest at ease nor exert myself. A short walk would bring utter fatigue with nausea, sweating and trembling. Itching of the skin annoyed me greatly, especially at night. Flashes of light would pass before my eyes.

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Within my chest seemed a heavy steam-hammer pounding away some hundred and twenty times a minute. I thought the ceaseless throbbing of the arteries of the neck would drive me mad, and I cared not whether they ceased forever. There were days, however, when I would feel quite well and on such days I always noted a diminution in the size of the goiter and a lessening of the cardiac and vascular symptoms.

Towards the end of the summer I gained a number of pounds in fat which accumulated on the abdomen and neck almost entirely while the rest of the body remained as emaciated as before; but with the gain in weight came an improvement in strength and spirits and a betterment in color.

This was my condition at the time of the operation, the result of which was the prompt disappearance of many of the general symptoms and a great improvement in those that remained. The depression of spirit has given way to a feeling of contentment. The profuse perspiration, the flashes of light, the pruritus, insomnia, variable appetite, diarrhea and vomiting and the cutaneous flushings with their sensation of heat have not been present since the operation. I can now perform an immense amount of work as compared with the feeble efforts previously possible, and without much fatigue.

Of the cardinal symptoms, the heart is reduced both in rate and force. I can now feel its beat only when I put my whole attention on the organ, while before the operation I could not divert my attention. When resting quietly the rate scarcely exceeds 90, which is 10 below the minimum rate before operation. The least improvement is in the eyes, though the eye-balls have receded sufficiently to allow the lids when closed to completely cover them, which by no means was possible before. Those symptoms, however, which made life miserable have disappeared, bringing relief in a way which I can scarcely put into words.

March 1, 1904.

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Formaldehyde Poisoning—With the Report of a Case.

By JOHN MacLACHLAN, M. B., Resident Physician, Lakeside Hospital, Cleveland.

Formaldehyde has become so commonly used as a germicide and disinfectant and is so readily obtainable that cases of poisoning, accidental or otherwise, from the ingestion of its solution might be expected to occur with some frequency. The catalog of the Surgeon-General's Library and the Index Medicus, to date, give references, however, to only 10 such cases, four of which were fatal ones.

In presenting the report of the case which came under the writer's observation it has seemed desirable to review this literature and with the data available attempt to sketch the symptomatology of formaldehyde poisoning. The previously reported cases, with the present one, 11 in all, are as follows:

Case 1. ANDRE[1]—Recovery:

Female, took one drachm of a 40% solution of formaldehyde in mistake for tonic. Had immediate, severe, abdominal pain. Within five minutes after taking the poison was given several teaspoonfuls of acetate of ammonia, then an emetic. Had only slight epigastric discomfort, which disappeared in two days.

Case 2. BOCK[2]—Fatal:

Imbecile male, aet. 26, drank three ounces of a 40% solution of formaldehyde. Immediately vomited blood-tinged mucus and had severe epigastric pain. Demulcents and apomorphin given at once, with free emesis. Continued weak and vomited repeatedly. Sixteen hours later pulse first weakened. In statu quo until the twenty-ninth hour when the heart failed rapidly until the thirty-second, when cyanosis, coma and death occurred. Autopsy showed marked erosion of the lower end of the esophagus. The stomach wall and duodenum were very much congested and cut like leather. Microscopic examination not made. Other findings not abnormal.

Case 3. PALMER[3]—Fatal:

Male, aet. 29, invited a friend to drink with him. The friend, who had just finished a meal, took whiskey and a little water (which turned out to be formaldehyde in a soda-water bottle); he had severe pains and vomited immediately but suffered no ill effects. The patient, who had not eaten for six hours, took a small amount of whiskey and filled his eight-ounce tumbler out of the same bottle; intense abdominal pain and collapse followed. When admitted to the hospital he was tender over the epigastrium, vomited blood-tinged fluid, was slightly delirious and had a marked feeling of constriction of the throat. He was given a dilute solution of ammonia followed by demulcents. Next day his mind was wandering but he was in no special pain. Two days later he became markedly delirious, noisy and at times maniacal. During one of these

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attacks his pulse failed, his breathing became shallow and his heart stopped. Autopsy showed the blood everywhere dark colored and fluid, mucous membrane of the lower end of the esophagus and the gastric mucosa tanned and parenchymatous organs somewhat congested.

Case 4. BOSE[4]—Fatal:

Male, aet. 47, was intoxicated and drank three ounces of a 40% solution of formaldehyde. Found shortly after unable to speak, with hands on abdomen and apparently in great pain. Did not vomit before admission to hospital. After lavage was able to talk rationally. Started to vomit almost at once and continued all that night, the vomitus being blood-tinged. Patient gradually sank but developed no other symptoms and died next day, 13 hours after the ingestion of the poison. Autopsy showed the esophageal and gastric mucosa intensely congested, as was the small and large gut. Some slight changes in the parenchymatous organs.

Case 5. KLUBER[5]—Recovery:

Male, aet. 47, was thought to have had an apoplexy. Remained unconscious 11 hours. It was found that a large dose of formaldehyde had been taken in mistake for Apenta water. Was delirious at times for the next 24 hours and complained, when aroused, of sore throat, headache and lacrimation. Had an anuria for 19 hours. Was given lavage and copious draughts of alkaline waters. Recovery in two days.

Case 6. ZORN[6]—Recovery:

Male, aet. 44, drank 15 c. c. of a 40% solution of formaldehyde in mistake for water. At once drank a tumbler of milk. Violent retching and vomiting followed with dyspnea, vertigo and severe gastric pain. Lavage administered at once. Collapse followed, with an anuria for 24 hours. During second day there was violent tenesmus, diarrhea and some epigastric discomfort. Recovery complete in four days.

Case 7. ZERLACH[7]—Recovery:

Female, aet. 21, swallowed some 60-70 c.c. of a 35% formaldehyde solution that had been given her to dilute and use as a douche. Found unconscious and aroused with great difficulty. Stomach washed out. Stuporous for 15 hours. Anuria for 12 hours. Next day complained of vertigo and had an offensive diarrhea. Urine showed formalin and albumin. Recovered by third day.

Case 8. LENISON[8]—Fatal:

Male, aet. 60, while intoxicated took three ounces of a 40% solution of formaldehyde. Was found writhing in pain and unable to speak. Did not vomit even after 3/10 gr. of apomorphin. Lavage attempted but the tube could not be passed on account of spasm of the pharynx. Died of cardiac failure in 29 minutes after taking the poison. Autopsy showed the esophagus, stomach and small gut literally "hardened."

Case 9. HUMPSTONE & LINTZ[9]—Recovery:

Female, aet. 33, was given a pint of 12.5% solution of formaldehyde as a colon irrigation in mistake for a weak silver nitrate solution. She first complained of severe burning in the rectum. Pain in the abdomen, pallor and cardiac arrhythmia followed rapidly and the patient went into collapse. Stimulants and saline enemata improved the condition. Violent diarrhea with tenesmus and vomiting supervened. Anuria for 24 hours. Urine showed blood and casts. Vomitus contained blood. Gradual recovery in two weeks.

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Case 10. BOWER[10]—Recovery:

Female, aet. 20, swallowed half an ounce of commercial formalin. Seen in 20 minutes, when she was not complaining of any pain. Gastric lavage was immediately done and she collapsed. Afterwards she complained of pain in the throat. Vomited blood-tinged material. Patient lay in a stuporous state for 36 hours and gradually recovered within seven days. No kidney disturbance.

Case 11. MACLACHLAN—Recovery:

The patient, a small boy, three years old, was admitted to Lakeside Hospital, October 19, 1908, under the care of Dr J. H. Lowman.

He had been given a tumbler of 40% formaldehyde in mistake for Poland Spring water and after taking one swallow, choked, but his father, thinking that it was the boy's usual distaste for water, insisted that he drink more. The patient attempted it again when he was seized with a violent coughing and choking spell and fell unconscious at his father's feet. When seen in the accident ward some 20 minutes later, he was still unconscious with a pulse of 160 and respirations 45. Before any attempt was made to give any treatment the patient vomited several ounces of mucus that smelled very strongly of formaldehyde.

Gastric lavage was at once performed with water, followed by milk, eggs and several pints of olive oil. He immediately regained consciousness and complained of pain in his stomach and a sore moutth. On examination the buccal mucous membrane was intensely red and the lips, tongue and pharynx were covered with greyish eroded patches. There was also a marked salivation. When he was later admitted to the ward, he was given strychnin sulphate, gr. 1/60, q. 4 h., and normal saline enemata by the drop method. In the evening the temperature was 103.5 F., pulse 140, respirations 38, leukocytes 7800, hemoglobin 95%.

Oct. 20, 1908: Patient vomited mucus repeatedly all night, but had only one stool which had a marked odor of formaldehyde. Urine voided during the night showed an acid reaction, a slight trace of albumin, no casts or blood, but a marked trace of formic acid was present according to Liebermann's phenol test.

Oct. 21, 1908: Temperature 100° F., pulse 120, respirations 24. Condition improved, no diarrhea or nephritis. Stool and urine both showed formaldehyde. Patient was quite comfortable and took milk by mouth, although he complained of some pain on swallowing.

Oct. 22, 1908: There was no trace of formic acid or albumin in the urine. Swallowing was still painful, but the condition was such that the child was taken home by the parents and made an uninterrupted recovery.

Reviewing the *toxic symptoms* presented in the reports of these cases, epigastric or abdominal pain, immediate and severe, was the most constant initial symptom, as in all irritant poisoning, followed by repeated vomiting of blood-stained mucus. Rapid loss of consciousness occurred in three of the cases, all of which recovered. Kluber's patient remained unconscious for 11 hours and was at first thought to have had an apoplectic stroke. Bower's

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patient lay in a stuporous state for 36 hours. One of the fatal cases, a man of 60, died in 29 minutes after taking three ounces of formalin when intoxicated, and though there was great pain and collapse, consciousness was apparently preserved. Sudden death from the ingestion of formalin was found by Fischer[11] and other investigators to occasionally occur in animals, and the former especially notes the fact that "formalin belongs to that rare class of poisons which are capable of producing death suddenly when swallowed." In the other three fatal cases death supervened in from 13 to 48 hours with rapid, irregular pulse, sighing and shallow respiration, delirium, collapse and coma.

In the cases that recovered, besides the epigastric pain and the frequent blood-stained vomiting of material smelling at first strongly of formaldehyde, there was marked prostration and collapse; the skin was pale and covered with cold clammy perspiration; the pulse was weak and irregular. Loss of consciousness, as previously noted, occurred in three of the seven cases and stupor and mild delirium in others. In all but three of the cases there was suppression of urine, not apparently dependent on the strength or quantity of the formalin solution ingested, the anuria lasting from 12 to 24 hours. Blood and casts were sometimes found in the urine and the presence of formic acid was determined in several instances. Diarrhea and tenesmus occurred in three of the cases. In that of the child observed at Lakeside Hospital the stools had a marked odor of formaldehyde. Complaint of sore mouth and difficulty in swallowing was common. Lacrimation was once noted.

The postmortem examinations of the fatal cases disclosed eschars of the buccal mucosa and pharynx; marked esophageal erosions; an extremely acute gastritis, with the stomach wall seemingly tanned into a leather-like consistency; besides various parenchymatous changes in the liver and kidneys. In the face of these findings and of the severity of the symptoms present in the non-fatal cases one is struck by the rapidity of recovery. All the cases reported were well within a week except case No. 9 in which the formalin was taken by enema and the resulting diarrhea was especially severe.

The fatal dose in three of the cases was in each, three ounces of formalin; in the fourth, a probably much larger but uncertain quantity was taken. In the cases that recovered the dose varied from one drachm to 60 c. c., the latter being the case of a young woman.

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The *diagnosis* of formaldehyde poisoning should be readily made early by the smell of the vomitus or of the material washed from the stomach. The stools may also have a strong formaldehyde odor, and formic acid is present in the first urine secreted.

As to *treatment* all authorities agree that formaldehyde is readily and quickly absorbed, no matter how introduced into the body, so that one must act quickly. Lavage with large quantities of water, followed by demulcents were used in nine of the cases. Sollmann[12] and Andre both strongly advocate the administration of diluted ammonia, or any of the ammonium salts, as a chemical antidote as it destroys the local action of the formaldehyde at once. Andre advises the use of ammonium acetate and in his case complete amelioration of the symptoms occurred after the administration of half an ounce of ammonium acetate, with recovery in two days. The excess of ammonia and the resulting compounds should be removed by emetics or lavage. Stimulants, anodynes and bland diet are required and other symptoms should be treated as they arise.

I wish to thank Dr E. F. Cushing for placing all of the literature at my disposal and Dr T. Sollmann for much valuable data.

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Modified Submucous Resection of the Nasal Septum.

By ROYCE D. FRY, M. D., Cleveland.

In operating for deflections, spurs or ledges of the nasal septum, difficulties often arise.

Evolution of the present method: With the early methods of sawing off large spurs or ledges the scar tissue which followed these operations often persisted in giving either constant or intermittent trouble by scabbing or by leaving dry, tender and sensi-

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tive cicatrices. In these cases I began some years ago to use the flap operation, which was the beginning of the modified submucous operation. This flap effectually removed all my former troubles, viz: a delayed healing of wound, which at times would require from four to six weeks, and the resulting tender, dry, scabbing cicatrix. The flap operation I originally did by cutting through the greatest convexity of the spur or ledge with a sharp pointed bistoury and a sharp tenotomy knife and then elevating the perichondrium and periosteum until the spur or ledge was laid bare and removed with a hollow drill, saw and chisel; the elevated flaps were replaced and stitched with a curved needle four and one-half inches long, which I had made with the eye near the point, thus facilitating the work. I have usually obtained complete healing in four or five days without the above mentioned scabbing and so forth. Since then Ballinger, Freer and others have perfected the classical submucous operation.

Pronounced spurs and ledges in some cases form a complete bridge, either indenting the inferior turbinate or adhering to it. This difficulty, in my hands, made a complete removal of perichondrium and periosteum without perforation impossible, and led me to modify the submucous operation. This modification was along the lines already stated, which had given such uniformly good results. The operation consists of cutting from behind forward over the greatest convexity of the spur or ledge, and uniting this horizontal cut anteriorly with the lower end of a vertical cut made on the septum as described in the classical operation. This horizontal cut is made with a hook-shaped knife (Freer's), the blade being one-eighth inch in length, set at a little more than a right angle to the shaft, with the cutting edge on a plane with the handle and on the proximal side. This longitudinal cut on the ledge shortens the operation very much by facilitating the raising of the perichondrium and periosteum. The elevation of these on the opposite side of the nose must be done with the greatest care so as to avoid a perforation, which otherwise may remain after healing. When the concavity is not marked on the opposite side, I remove the bared spur or ledge with a saw before elevating the perichondrium and periosteum. This thins the walls to such an extent that the subsequent steps are much easier and the danger of perforation is less. The core drill and burr are much more rapid and satisfactory instruments than the chisel for removing projecting portions of the spine of the superior maxillary. I re-

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move only such portions of cartilage and bone as obstruct the passage; cleanse the parts with bichlorid solution; replace the flaps and stitch them anteriorily, when they will not remain in positior without traction; then pack with Simpson's "intranasal tampons' covered with a strip of sterilized dental rubber dam. This rubber strip is cut in size to cover the tampon on both sides from before backwards, and is held in position with forceps while it is introduced. The tampon is removed in 24 hours without bleeding and the nostrils wiped with bichlorid solution and dusted with iodol. Blowing of the nose should be prohibited, and the case should be dressed daily by the operator or an assistant. I have operated on more than 50 cases, requiring after-treatment for not more than from four to ten days and without perforation.

The advantages of this operation are:

1. It shortens the time from one-fourth to three-fourths over that required for the classical submucous operation.
2. It reduces the amount of cocain in the same proportion as it shortens the time.
3. It improves drainage.
4. It lessens liability to perforation.
5. It shortens the time of wearing tampons.

836 Rose Bldg.

Typhoid Fever Complicating Pregnancy.

By WM. O. ZIEMER, M. D., Cleveland

The history of the study of typhoid during pregnancy may be said to begin with the observations of Louis in 1829. As to the frequency of this complication, statistics are not very accurate. Liebermeister in 1,420 cases found but 18 associated with pregnancy and Zuelzer in a series of 1,852 cases at Vienna, found but 24. Thus the percent runs between 1.2 and 1.3, but these statistics make no distinction as to age or sex. At the Johns Hopkins Hospital, pregnancy was noted four times in a series of 289 cases at all ages. In going over the records of Lakeside Hospital, but one other instance was noted in a series of over 400 female typhoids, and in this instance the pregnancy was uninterrupted. Thus in 3,608 female typhoids from various sources, pregnancy existed in 93 or less than 3%. But these statistics were collected from cases at all ages and should they be compiled from patients during the childbearing period, the percent would be

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much higher. The older authors held that pregnancy offered a protection against typhoid, but later observations have not substantiated this claim for in various epidemics in which whole towns were involved, pregnant and non-pregnant women contracted the disease in about the same proportion. On the other hand, Müller has shown that the complications of typhoid are rare in pregnancy and if there is no interruption, the course of the typhoid is apt to be slight. Typhoid usually occurs during the first half of pregnancy and interruption takes place most commonly at the third month and during the second week of the fever. Various causes have been advanced for the frequency of abortion in typhoid, but the mechanism is more complex than is usually supposed and no one theory thus far advanced seems to hold good for all cases. The experiments of Claude Bernard and Runge furnished the basis that high and prolonged elevation of temperature acted directly upon the fetus and exciting the uterus to contraction with subsequent abortion. Winckel, in Gusserow's clinic, showed that the fetal heart rate increased in direct proportion to the maternal temperature and Gusserow, himself, stated that the danger to the child is proportional to the elevation of the maternal temperature and to the duration of this influence. Abortion occurs in from 50 to 70% of all cases of typhoid. Three causes stand out most prominently: first, high temperature; second, the accumulation of toxins in the maternal blood and their passage through the placenta to the fetus; and third, the death of the fetus. Most writers agree that the death of the fetus is the most common cause of the abortion. In the earlier cases, proof of the transmission of typhoid from the mother to the child was naturally sought in lesions of the intestine similar to those of adults and Charcellay in 1840, and Manzim in 1841, reported cases of fetal typhoid, but these cases were not fetal typhoid as the transmission of the disease can only be ascertained by bacteriological means. For even in children, typhoid is often a bacteriemia and intestinal lesions are wanting. However, the presence of rose spots in the fetus has been noted in a few cases. That the typhoid bacillus is transmitted through the placenta has been shown by many observers. F. W. Lynch at the Johns Hopkins Hospital was able to demonstrate and grow the typhoid organism from the fetal blood and organs in two cases, although in neither did the fetal blood give a positive Widal reaction. Brown and Fordyce, however, have reported cases in which the

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organism was cultivated from the fetal organs and in which both the maternal and fetal blood gave a positive reaction. Thus it has been definitely proved that the typhoid bacillus can traverse from mother to child through the placenta; that infection of the fetus results, and that intra-uterine typhoid takes place; this, from the first, is a general septicemia and therefore the classical symptoms and intestinal lesions are wanting. The fetus usually dies in utero, or soon after birth, as a direct result of the typhoid infection. It may be born alive but death usually occurs in a few days without definite symptoms. It is also possible that the fetus may pass through an intra-uterine typhoid and be born alive and well, but we have no proof that this happens. Furthermore, infection of the fetus does not always occur and the pregnant woman does not necessarily transmit the disease to her child.

The history of the case to be reported is as follows:

E. H., female, aged 23, married, was admitted to Lakeside Hospital, August 14, 1905, complaining of headache, fever and pain in the back and joints. Has one child 16 months old, living and well; has not menstruated for past four months. Otherwise the family and previous history are negative. Present illness began August 1, 1905, with headache, general malaise, fever and chilly sensations, also nose-bleed, vomiting, appetite lost and bowels constipated. On physical examination patient proves to be a well nourished woman; rather apathetic; pupils dilated; tongue coated and tremulous; pulse low tension and markedly dicrotic; heart and lungs negative; abdomen full and distended, marked swelling of lower portion and considerable tympanites; a beautiful crop of rose-spots present; spleen not palpable; uterus easily made out on abdominal palpation, soft and enlarged, extending to a point 10 cm. below the umbilicus in the median line. On vaginal examination, cervix soft and the enlarged bulging uterus easily made out. Breasts enlarged and a small amount of colostrum obtained on pressure. No fetal heart sounds heard. Leukocytes 8,700, hemoglobin 74%. Widal reaction very suggestive. From these findings, the diagnosis of typhoid fever, associated with pregnancy, was made. Patient was placed under special enteric precautions with baths at 90° F. if the temperature exceeded 102.5° F. She took water and nourishment well and the temperature began to fall gradually. On August 21, she began to complain of pain in the abdomen and back which simulated labor pains. The ice coil was applied to the abdomen and an opium suppository given which quieted her and the pains ceased. The Widal reaction was now positive. Everything went well until the morning of September 3, when she was attacked with sharp labor pains. These became more severe and at 2 p. m. they occurred at three minute intervals. On examination the cervix was found dilated to about the size of a quarter dollar and membranes bulging. At 3 p. m., membranes ruptured. Patient had been prepared for delivery with rigid aseptic precautions and at 3:45 p. m. a dead fetus was born. Five minutes later, the placenta was expressed by the Credé method. Hemorrhage was slight and patient stood

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the procedure very well. The cord, placenta and fetus were immediately placed in a sterile dish and transferred to the pathological laboratory. The following report upon them was submitted by Dr David Marine:

Body received in a sterile dish and the dissection was done with aseptic precautions, especial attention being paid to the bacteriology. Placenta measures 11 x 2.5 cm., generally circular in shape, the usual number of lobes present, membranes normal, few clots on maternal surface and on section it is generally gray with many small hemorrhagic areas. Cord normal. Fetus, a male, white child, 24 cm. long, still warm. Extensive extravasation of blood into tissues of scalp, otherwise negative. Abdominal cavity contains about 2 c. c. of clear yellow fluid. Intestines about the size of a slate pencil, and contain a gelatinous fluid. Meconium-like material in sigmoid-colon. Liver fills greater part of abdomen above umbilicus, is dark red in color and on section presents no macroscopic lesion. Spleen normal. Lungs pink and airless. Heart normal. Kidneys well formed, 2 cm. long and on section the structure is easily made out. Bladder distended and contains 2 c. c. of a nearly clear fluid. Cultures were taken from the cut ends of the cord, peritoneal and bladder fluids, from the heart's blood, lung, liver, spleen, kidneys and placental blood, using in each case an Ehrlenmeyer flask containing about 75 c. c. of plain bouillon; to this five or eight drops of the fluid or a bit of the tissue was added. This was further supplemented by stroke cultures on slant agar and blood-serum and plates from the various organs and fluids. They were incubated for 17 hours at 27° C., and examined with the following results. In all the media there was found a slightly irregular staining, medium sized and very actively motile bacillus, negative to Gram's stain. Each group of inoculations presented the same cultural characteristics which were: On glucose, a slight growth along stab, no gas. In litmus milk, no change. On potato, growth demonstrable on oblique illumination. In bouillon, slight clouding. On slant agar, fine growth, with serrated margin, glossy, slightly raised on surface, bluish-white and translucent in color. All cultures were examined again at 24 and 48 hours respectively. The single organism, above described, alone growing out, proved to be. morphologically and culturally, Bacillus typhosus.

To prove conclusively that the organism was the typhoid bacillus, the following agglutination tests were made. A number of serum tubes were taken from the peritoneal fluid and the fetal heart blood. Using the fetal serum and a known typhoid organism, the Widal was suggestive. However, with the peritoneal fluid and a known culture, the Widal was positive instantaneously in a 1-10 dilution and in five minutes in a 1-50 dilution. Using the fetal organism and a known serum from a number of typhoid patients in the ward, the Widal was positive in every instance. Using the fetal organism and the fetal serum, with the heart's blood, the Widal was suggestive, but with the peritoneal fluid, it was immediately positive. Using the fetal organism and the maternal serum gave a positive reaction. The organism which was recovered from the fetus has since been used for agglutination tests in the laboratory. Thus from the serum tests the organism also proved to be the typhoid bacillus.

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The Sending of Indigent Consumptives to the Southwest.

Cruel and inhuman practices are alleged against the doctors who persist in sending dying cases of consumption to the Southwest.

Fully 7,180 persons hopelessly diseased with tuberculosis annually come to die in the states of California, Arizona, New Mexico, Texas and Colorado, most of them by order of their physicians. The statement, which is based upon the testimony of well-known experts, and all available statistics, shows that at least 50% of those who go to the Southwest every year for their health are so far advanced in their disease, that they cannot hope for a cure in any climate, under any circumstances. More than this, at least 60% of these advanced cases are so poor that they have not sufficient means to provide for the proper necessaries of life, which means that 4,315 consumptives are either starved to death, or forced to accept charitable relief every year.

It is not an uncommon thing, the National Association declares, for whole families, who can hardly eke out a living in the East, to migrate to the West in the hope of saving the life of some member of the family. In most instances, the abject poverty of such cases forces them to beg, or to live on a very low level. Often consumptives who cannot afford the proper traveling accommodations are found dead on the trains before reaching their destination. The resources of almost every charitable organization in the Southwest are drained every year to care for cases which would be self-supporting in their Eastern homes.

It cost, on an average, at least $50 per month for the support of a consumptive in the Southwest, including some medical attention. The National Association strongly urges no one to go to this section who has not sufficient funds to care for himself at least one year, in addition to what his family might require of him during this time. It is also urged that no persons who are far advanced with tuberculosis go to so distant a climate.

Consumption can be cured, or arrested in any section of the United States, and the percentage of cures in the East and the West is nearly the same. Any physician, therefore, who sends a person to the Southwest without sufficient funds, or in an advanced or dying stage of the disease, is guilty of cruelty to his patient. Renewed efforts are being made to stop this practice, and to encourage the building of small local hospitals in every city and town of the country. Attempts are also being made in Southern California and in Texas to exclude indigent consumptives or to send them back to the East.—*Press Service of The National Association for the Study and Prevention of Tuberculosis.*

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EDITORIAL

The Tent Colony For Tnberculosis.

The closing of the Tent Colony for Tuberculosis, in connection with the Fresh Air Camp on Woodland Hills, opens again the question of the health of these children during the winter. The response of children to the fresh air treatment, as shown in vacation schools and seaside homes, is one of the most remarkable developments in tuberculo-therapy. The children in the camp here show improvement as soon as they take up their residence on the hill. The collateral irritations that surround the tuberculous foci of the lungs, subside materially in a week and by the end of the season all the signs of disease decidedly diminish and the children go home strikingly improved; but as the winter ends and the children again apply for relief the signs of relapse are numerous.

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It has been the policy of the camp to receive the same children from year to year, with the view of producing permanent results. Some have been cured but a long winter and unfavorable surroundings are insuperable obstacles for the many, and they consequently return year after year as the spring opens. It is a misfortune that the colony cannot offer a continuous service. When medical supervision of the schools becomes general here, as seems now probable in the near future, the segregation of defective and tuberculous children in special schools will be the logical sequence. Several of those who have been in the Tent Colony from season to season, will be suitable candidates for such schools and they will then be able to supplement their summer by a wholesome school experience in the winter, with profit to themselves and harm to no one.

It is the long continuity of effort that tells in the treatment of the tuberculous individual. Every community should see that such treatment is made possible. Spasmodic effort in tuberculosis is economic loss; but continuous attendance or residence at school, colony or sanitorium cannot be made possible without attractive and well equipped institutions unless mandatory laws enforce it; and this will probably never happen except in the case of the contumacious and irresponsible consumptive. J. H. L.

Medical Inspection in the Schools.

The following communication addressed to the Board of Education is before us:

"To the Board of Education, Cleveland.

Gentlemen: The influence of physical welfare upon the mental and moral well-being of the child has come to be so universally recognized as to need no further argument. That medical inspection in the schools is an important element in securing this physical welfare, is, we believe, fully recognized by your honorable Board. The cooperation already existing between school authorities and the inspectors of the Board of Health, together with your attitude toward the reports which have already been made upon the subject by this committee, are evidence of this recognition.

We believe, therefore, that it is unnecessary to repeat the arguments in favor of the adoption of a system of medical inspection in the schools which have already been advanced by this com-

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mittee, but for your convenience you will find attached copies of the reports containing these arguments. This committee desires to submit, however, upon the informal request of your Board through its president, certain definite recommendations for the establishment of a system of medical inspection and supervision in the public schools of Cleveland.

(*Signed*)

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The committee on municipal sanitation of the Chamber of Commerce recommends to the Board of Education the establishment of a department of physical supervision and direction, the purpose of which shall be the organization and direction of medical and dental inspection and supervision of physical culture in the public schools, and the supervision of the sanitary conditions of school buildings and grounds.

The appointment of a supervisor, who shall be a physician with special training in medical inspection, at an annual salary, sufficient to insure a man of high efficiency; probably not less than $3,000.00. The supervisor to have charge of the organization and administration of the department and its employes.

The employment of at least 10 physicians at a salary of $1,500.00; these physicians to devote at least five hours daily during the school sessions to the work of the department.

The appointment of 10 nurses at an initial salary of $700.00; to devote their entire time to the work.

The employment during the first year of additional physicians or specially trained inspectors, sufficient in number to insure the examination of every child in the schools for physical defects. (Note—It is probable that after the first year, with its complete examination, the employment of most of these inspectors will be unnecessary.)

The notification to parents of existing physical defects, with proper recommendations for securing treatment.

The following up by the nurses of these recommendations when necessary, and the submission of the case to the family

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physician or public dispensary—final reference to the Juvenile Court when necessary.

Record of data by means of card system—the record to follow the child throughout his course.

Some provision for compiling data which will result in the discovery of causes of physical defects and their resultant removal.

The Journal has been much impressed with these recommendations recently submitted to the Board of Education by the committee on municipal sanitation of the Chamber of Commerce. The recommendations, as we understand it, are the culmination of a number of years of study of medical inspection and supervision in the schools at home and abroad on the part of this committee. Because of the significance of this communication, we have quoted it in full.

The conception of this committee is not new. It is generally recognized and adopted abroad and has a more recent recognition on the part of a number of municipalities in this country.

The relationship of medical and physical well-being was recognized by the Greeks, who realized that mind and body must be developed commensurately.

We believe that the efficiency of our citizenship and the integrity of our institutions depend upon the recognition and fulfillment of these principles.

We are confident that every progressive physician and educator will heartily endorse and urge the adoption of these recommendations proposed by the Chamber of Commerce to the Board of Education.

The Board of Education seems to be thoroughly alive to the importance of the matter and for some time past has been giving it considerable attention. There seems to be no doubt that they will take action along these lines in the near future.

The question has been raised as to the advisability of the employment of physicians who shall devote but part of their time to this work. Certain objections can, of course, be raised to it, but this aspect of the subject will be sure to receive due consideration at the hands of the Board of Education, and be settled in what seems to be the most feasible way.

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Sewer Gas and Disease.

Formerly the study of house hygiene centered about the question of plumbing, and it was thought that one of the most important etologic factors in typhoid and kindred diseases was distribution of the infection by means of sewer-gas from leaky fittings. The important series of researches by Nägali and others showing that it was quite difficult for bacteria to leave a moist surface, and that the air over water was proportionately purer, whatever the quality of the water, led to a change of opinion in this country and in Germany, while England remained more or less wedded to the old idea. In fact two recent researches by prominent English observers (Horrocks and Andrews) appear on the face of them to prove this old theory to be the true one. Horrocks has found that by making a strong emulsion of known bacteria, pouring it into the traps and other parts of the sewage system of a building, and exposing plates filled with culture media at different heights above the emulsion, they were able, in a large proportion of cases, to recover the organisms. This indicated of course that a certain number were set free in the foaming and bubbling of the fluid as it passed through the traps, and were carried up into the air where they fell on the plates. Andrews was able to isolate streptococci and colon bacilli in a number of cases in sewers and drains, the flasks being left exposed for some time. These reports led C. B. Winslow of the Massachusetts Institute of Technology to investigate the matter, and his work, with a summary of the articles above mentioned, was presented at the annual meeting of the American Public Health Association. The reputation of the English observers made it more than improbable that there were errors in technic, so Winslow pursued the matter with some care, duplicating their work, and making further modifications. He found, in general, that the statements were accurate and that under the conditions of the experiments there were bacteria carried into the air, and therefore susceptible of being carried into the rooms where plumbing was defective. According to him, however, the flaw was in the fact that the work was qualitative and not quantitative, so he set out on a new series to avoid that criticism.

Experiments were performed in private and public buildings, under a variety of conditions, in association with, and commissioned by, the sanitary committee of the National Association of Master Plumbers. Artificial openings were made into various

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parts of 19 plumbing systems, and measured quantities of air were taken and examined. In many of the cases at the time that the air was being taken, some of the pipes were being flushed and a few samples had to be discarded because the sewage water actually came over into the culture bottles. Out of 197 liters of air, taken in 20 different places, only four showed any sewage bacteria, the air of the vents and other parts of the sewage system being markedly freer from organisms than the air of the rooms. Samples of air taken in sewers showed that the number of bacteria increased directly as the outer air was approached, and in fine the results of the careful examination showed that there was no reason to revise our opinions as to sewer-gas. While under conditions where there is splashing some few organisms may be detached, and carried in the air currents, the number is so small as to be negligible, and it can hardly be considered probable that any cases of typhoid or similar diseases are transmitted by this means.

In these days of revision of health codes and of the machinery of public health in general, it is of the utmost importance to understand the relative importance of the etiologic factors in the transmission of disease and it is only by careful researches of this kind, carried on, not alone under artificial laboratory conditions but also under actual living conditions that we can obtain a safe basis for action. Typhoid and other digestive tract diseases have been the shuttlecock of discussion for a long time and the matter is still under adjustment. Transmission by miasmas and emanations, such as sewer-gas or water as the only source of infection, proved unsatisfactory as a basis for the prevention of the disease, and it is only since the other important agencies, such as flies, etc., are better understood, and typhoid carriers are considered, that the whole problem is being looked at from a broad point of view and that successful campaigns are intelligently undertaken. R. G. P.

A Modern Research Institution of the Reduction of Infant Mortality.

The causes of infant mortality and the means to combat them are constantly attracting more and more the attention of civilized countries, and the latter are beginning to realize that the enormous loss of life during the first year is not to be regarded simply as nature's means of picking out the fittest.

Much good has been done during the last few years prac-

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tically everywhere, but it has once more remained for Germany to take the lead and open, in July 1909, Das Kaiserin Auguste Victoria-Haus zur Bekämpfung der Säuglingessterblichkeit im Deutschen Reiche, an ideal workshop which is so complete and so thorough, in every respect, that it cannot help but be the biggest factor in the solution of the many problems still confronting those attempting to lower the high infant mortality.

The main plan to be carried out at the Kaiserin Auguste Victoria-Haus is the following:

(a) To study the physiology and pathology of pregnancy, and

(b) To study the physiology and pathology of the infant from birth on to the end of the year. This will include normal and ill breast-fed, and normal and ill artificially-fed infants. Especial attention will be paid to the atrophic and also to the premature babies. The idea is not only to solve new problems but also to come to some definite decision based upon thorough and prolonged competent observation, with every aid of the various laboratories, as to the correctness of the various theories of etiology and treatment of varied conditions. This can best be illustrated by a description of the method laid down for the determination of the best treatment of premature infants. One room will contain a definite number of infants in incubators; in another will be placed the same number of infants, not in incubators, but in regular beds heated with hot water bags; both groups of children are to be watched for a definite length of time by competent observers, and at the end of this prolonged experiment the correct conclusions will be drawn and published.

An obstetrical ward; a ward for ill children and their mothers; a ward for well children and their mothers; wet nurses; a milk laboratory; a modern dairy; numerous laboratories; a library; a lecture room; a training school for doctors, nurses, nursery maids and lady-nurses are all centered in this institution, giving to the workers everything that is needed for an ideal study.

A dispensary for well infants, one for ill infants, with the necessary isolation rooms, visiting nurses to go to the homes, the milk laboratory, the central office for the collecting and keeping of sociological records and for the sending of proper literature and also acting as the center of the sociological movement of Germany, together with the library containing all modern literature and with a permanent exhibit of material used by mother

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and child before birth and during the nursing period, make this department of the work just as ideal as the other.

One can justly exclaim with Heubner: "What a chance for the youthful, properly trained worker! What a joy for those who will be privileged to work in this wonderful institution with its complete equipment, with success staring them in the face! What a pleasure must it be to them to have the opportunity to give the best that is in them, to devote years of work to the Kaiserin Auguste Victoria Haus, to science, in the noble endeavor to give to the nation a 'healthier future'!" H. J. G.

The National Hospital, London.

To the physician visiting London, one of the most interesting hospitals for him to see, or in which he may desire to work, would be the National Hospital for the Paralyzed and Epileptic on Queen Square—"The National," as the staff affectionately call it. This famous institution, with which are connected such well known men as Gowers and Horsley, is a hospital of about 200 beds, devoted exclusively to general neurological cases (not mental cases). It has been made truly National, as its name indicates, in its reception of patients from all parts of the British Empire,—from England and other portions of the British Isles and from the Colonies, Australia, Canada, India, New Zealand, and South Africa.

Naturally not all the patients drawn from this broad field who desire admission can be received, and just as naturally those who are received, together, form one of the most interesting, one of the most varied collections of neurological material in the world. And as the cases do not remain indefinitely, one may meet a constantly shifting scene. Many of these cases require operative measures, so the hospital proves of interest alike to surgeon and physician. As is the case with other London hospitals, graduates in medicine (no medical school is connected with this hospital) may have access to the wards and act as clinical clerks upon payment of a moderate fee.

The house- and visiting-staffs are quite courteous and cordial, and one receives much pleasant instruction from them.

In connection with the hospital, there is an outpatient department with many thousands of neurological cases a year; here one may see, almost any afternoon, an interesting array of clinical material. For the benefit of physicians there are afternoon clinics

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given throughout the year by such men as Batten, Buzzard, Collier, Risien, Russell, Stewart, and Turner. To these clinics, which are often delightfully informal, physicians in general are welcome. There is no red tape and no fee. A differentiator selects from the new cases of the day the 10 best and most interesting from a teaching standpoint and these are sent, one by one, to the chief of clinic for that day. The history is taken, the patient carefully examined, and the diagnosis, the differential diagnosis, the therapy, and other points discussed. Outpatient material is not often so efficiently cared for and employed for teaching purposes for the benefit of our fellow practitioners.

The spirit pervading the atmosphere of the entire institution is thoroughly stimulating. Every one is full of enthusiasm, and every one works, and the results of this careful conscientious work has been not only to spread the good name of this hospital around the world, but has added many new important diagnostic and therapeutic points to our medicine and surgery of today.

C. W. S.

Fourth of July Mortality Statistics.

A summary of the deaths and injuries resulting from the celebration of the last Fourth of July, and a comparison with the record of previous years, appears in the *Journal A. M. A.* for Sept. 18, 1909.

The annual compilation of these statistics has become a recognized function of the Association's organ and forms one of the most astounding evidences of the complacency with which we, as a nation, regard the needless sacrifice of human life. One would imagine that the presentation of such figures would be followed immediately by the general adoption of measures to prevent a repetition of such carnage. That such measures can be effective is proved by the results obtained in Baltimore, Washington, San Francisco and our own city which passed and enforced prohibitory city ordinances. The value of merely restrictive ordinances has been shown to be much more questionable, and depends entirely upon the manner in which their provisions are observed; thus Chicago's restrictive ordinance caused a marked reduction in the number of injuries and no deaths resulted, while other cities with such laws did not make so good a showing, probably because they were not strictly enforced. The inference is

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plain and there is no excuse for other cities delaying longer in following the good example set by Cleveland, Washington, etc. The local profession, through the Academy of Medicine, should do their utmost to see that the neighboring towns fall into line. There is no better opportunity than the present and with such overwhelming evidence as to the necessity for, and the satisfactory results of, such legislation the opposition of the dealers should have absolutely no weight. Probably if the matter were attended to at once the excuse that supplies of fireworks had already been ordered for the next Fourth could not be offered.

In looking over the graphic statistical tables in the *Journal's* article, the responsibility of the blank cartridge for a large proportion of the fatalities is plainly seen. Nearly all of the 150 cases of tetanus that occurred this year were due to the blank cartridge, most of the rest being caused by cannon crackers. It would seem as if some responsibility must rest upon the profession for these results; if thorough measures had been adopted, the wounds satisfactorily explored and cleansed, and a prophylactic injection of tetanus antitoxin given in all these injuries when they were first seen, the number of cases of tetanus would have been far fewer, or at least the proportion of recoveries would have been much greater. The campaign of education as to the proper care of such injuries has apparently not been carried far enough.

Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

Leukocyte Extract: In the *Archives of Internal Medicine* for July, Philip Hanson Hiss Jr. considers the treatment of infections in man with leukocyte extract. The fact has been forced on him that although we are able to cure positively acute septicemias in animals by the injection of leukocyte extract, the more subacute septicemias of man do not yield readily to our present mode of treatment, whereas even extremely severe acute and chronic localized diseases, due to the same organisms, respond to such treatment. This is true of pneumococcus, streptococcus, and staphylococcus infections. In meningococcus cases treated there were 80% of recoveries with no sequelae; these were under 15 years of age, of those over 15 years there were seven, five of whom died, though several of these were *in extremis* when admitted to the hospital. In spite of this, some of the patients under treatment showed a marked improvement and did not die before 27, 38, 7, 11 and 25 days after treatment was begun. It is of interest to note that in seven cases in which treatment was begun *subsequent* to the seventh day of the disease 100% recovered without sequelae. Almost without ex-

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ception there was improvement in those symptoms which in this disease depend on the central nervous system. Vomiting, delirium, stupor and hyperesthesia were usually diminished or entirely allayed after one or two administrations ranging from 5 to 20 c. c.

In pneumococcus infections 12 or 15 patients were systematically treated and of these one died, which might be true of any series of the same number. However, the uniformity with which temperature changes and the relief of toxic symptoms follow the administration of moderate amounts of extract in the lighter cases, and often in the severe cases after the administration of larger or repeated doses, points to a toxin-controlling and beneficial action of the extract.

As to streptococcus infections, about 50 cases of erysipelas were treated by this method. Adrian Lambert gives his conclusions from these cases as follows: Leukocyte extract will abort infections which are treated within the first 48 hours. It will ameliorate the course of older infections and may abruptly terminate them; the longer the infection has existed, the less likely is the latter to take place, but it tends to shorten the course of the disease. The toxic symptoms, delirium, headache, nausea and vomiting are modified and relieved; local pain is lessened. The rash does not disappear immediately but is apt to be localized. The spreading intractable lesions of the back and body are apparently affected as readily as those occurring on the face and head. Pus formation is aborted and sequelae are rare, if they occur at all. About 50% of babies under one year of age have recovered from erysipelas. The effect of leukocyte extract on erysipelas strongly suggests its use in the streptococcus infections complicating the exanthemata, and of course in streptococcus infections in general. Many of the dangerous sequelae of these diseases might be avoided by its use. Local acute and chronic staphylococcus infections respond almost immediately to treatment with the extract and furunculosis of intractable type is halted and apparently cured. Zinsser has treated 11 patients who had staphylococcus infection and in these, after treatment was begun, surgical interference was always unnecessary.

Chorea: In the September number of the *American Journal of the Medical Sciences,* George Montagu Smith believes that in the treatment of chorea rest in bed for an indefinite time is imperative. We should administer such drugs as overcome or combat, at least, the infecting germ, e. g., quinine if indicated, sometimes arsenic or the different salicylates probably in large doses. We should remove the ordinary channels of infection such as diseased tonsils, adenoids, decayed or decaying teeth, which are, he is sure, a common nidus of such affections. Such treatment should be kept up indefinitely until normal temperature, blood tests, and general nutrition, composure and happiness indicate that the child is no longer under the influence of an active infection. No one can possibly tell the duration of such a condition. As to the cardiac cases, the treatment of rest in bed can do only good. The harm arises from letting such patients run about and be subjected to the strain of ordinary life. Not infrequently in cases of acute endocarditis with active choreic movements, the movements subside after a day or two of quiet rest in

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bed and sufficient sleep. The important thing is to recognize a condition of infection and not be led to treat the symptoms due only to the processes caused by the infection.

Cholelithiasis: John C. Hemmeter in the *Monthly Cyclopaedia and Medical Bulletin* for August states that *gall-stones cannot be dissolved by any medicine that can be taken by the mouth.* All medicines hitherto supposed to have this power bring their only apparent and very transient improvement by their anodyne effect. The Durand drops, composed of one part of turpentine, four parts of ether, 20 to 30 grams of cognac and the yolks of two eggs, act simply as an anodyne; the dose is 15 to 60 drops. Olive oil, oleate of soda, glycerin, preparations from bile, and bile salts are of doubtful value. He has seen cases, however, in which the salicylate of soda seemed to act as a very effective anodyne and even to reduce the jaundice and size of the liver; he is convinced that the bactericidal effect of the bile is increased after taking for two days 60 grains of salicylate of soda in divided doses. Medical treatment should not be continued too long; the danger from the complications are too great and especially should the practitioner be cautioned concerning the alarming increase of cancer of the biliary apparatus traceable to the effect of gall-stones. He does not use cholagogues, as they do harm; even the bile salts when so administered injure the stomach. By the time the cholelithiasis is established, it is impossible to prevent catarrhal duodenitis, because this, as a rule, precedes the catarrh of the biliary apparatus. In treating this condition he studies the feces, ascertaining what foods are not digested and excluding them; enjoins rest in bed and hot applications to the abdomen; and orders a half pint of hot Carlsbad-sprudel water at seven a. m. before breakfast and at five p. m. In his opinion it is impossible to dissolve the calculi, and any treatment to this end is bad procrastination. As soon as a diagnosis of gall-stones is made definitely and the condition of the patient permits it, he recommends surgical treatment; even if the gall-stones are not due to infection but to abnormal liver metabolism they must be removed. As to indications for operation, (1) fever, (2) constant and extreme tenderness over the liver and (3) leukocytosis are the most reliable signs of suppuration. The mortality in those cases he was obliged to treat medically was much greater than in those submitted to the surgeon, as cancer often supervenes in cases treated medically. The best prophylactic for those inclined to gall-stones is Carlsbad-sprudel or Bedford water, as hot as can be drunk, and living on such a diet as has proved itself to be best digested.

Stypticin: Henry I. Berger, in the *Therapeutic Gazette* for August, writes concerning the classes of cases in which stypticin heads the list of the so-called uterine hemostatics. Before the practitioner decides upon the hemostatic, it is necessary that he should have a thorough understanding of his case and the object that he wishes to accomplish. He summarizes the indications of stypticin as follows: (1) In all cases of hemorrhage from the uterus determine the cause and treat each case on its own merits, bearing in mind the relative greater frequency of miscarriages and taking measures to protect yourself. (2) Select the

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proper hemostatic; in all cases of uterine hemorrhage, in the absence of foreign bodies in the uterus such as secundines (tumors, such as polypi and cancer are also included, for these should be regarded as foreign bodies), stypticin should be thought of as the "first aid to the injured." When there are bits of placenta remaining in the uterus, such as occurs after incomplete abortion, first empty the uterus, then prescribe stypticin to stop the hemorrhage. (3) Stypticin is very effective in controlling excessive menstruation; its administration should be begun several days prior to the expected period. (4) In obscure cases of hemorrhage from the uterus stypticin is the superior hemostatic to be employed; if you know the cause, treat the underlying condition. (5) Not all cases of incomplete abortion require curettage, for when the uterus is emptied stypticin will almost always stop the bleeding. (6) The usual causes of hemorrhage from the uterus are local; stypticin should therefore be administered almost as a routine because there are no dangers connected therewith and its action is nearly always a foregone conclusion.

Aspirin: In the August number of the *Medical Review of Reviews (La Med. Italiana)*, Radice found that aspirin diminishes the temperature in tuberculosis in those cases in which the fever is not very high, small doses (0.25 gm., 4 grains), administered preferably a few hours before the maximum increase in temperature, being sufficient for the purpose. The effect becomes evident from one to two hours after the introduction of the remedy and persists for 10 to 12 hours. Its action is not as distinct and uniform in the mixed infections (intestinal tuberculosis, etc.) as in ordinary simple tuberculosis. Improvement of the general condition follows in close connection with the administration of the remedy and the lowering of the temperature. In those cases in which the effect manifests itself with unusual promptness, a favorable prognosis may be rendered up to a certain degree. In the presence of a very high fever there is but a slight effect to be noted following the employment of the preparation. Aspirin is favorably distinguished from sodium salicylate by being very readily tolerated by the patients.

Scarlatina: W. Hanna Thompson in the *Medical Record* for August 28, reports a severe case of scarlatina and diphtheria in which no medicine was used except diphtheria antitoxin and chlorate of potash solution locally to the throat. Although 15,000 units of antitoxin were used, no effect was observed on the exudate, which was so extensive that the child was unable to swallow. The throat was douched every two hours, day and night, with a solution of chlorate of potash from a fountain syringe six feet above the patient's head. To prevent her gagging or swallowing any of the water the mouth was kept wide open by a rubber ball held between the teeth. The child recovered. He believes that effective local treatment is as much indicated in scarlatina as in diphtheria, especially in that early stage when both diseases are still virtually local affections; for this purpose nothing is so certain to fulfill the requirements as a strong stream of water. This can occasion no local injury and meanwhile it not only removes great quantities of poisonous exudate, but actively stimulates healthy throat secretions along with a

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free flow of fluids from the posterior nasal area. When properly applied no gagging occurs, as so often accompanies throat swabbing, and which of itself may not seldom set up inhalation pneumonia. The scarlatinal otitis also becomes a much milder complication than that form which leaves the patient hard of hearing for a lifetime and is said to be the cause of 20% of deafmutism in our asylums. He recommends, therefore, throat douching at the earliest onset of scarlatina, at the first signs of sore throat, before the various kinds of streptococci can gain entrance. It is equally indicated in diphtheria, both to lessen the absorption of the toxin and to prevent the invasion of streptococci through the ulcerated mucous membrane. When general infection has already occurred, the prevention of further invasion may enable the patient's resistant powers ultimately to cope with and overcome the enemies which have made their way into the blood and tissues. On the same principle he is also fairly certain, from his experience, that the relatively late occurrence of scarlatinal nephritis is preventable by throat douching.

Typhoid Fever: In *Merck's Archives* for August, Homer Baxter Sprague presents some advantages of a water diet in typhoid fever. In the dietetic management of typhoid fever the tendency is toward overfeeding, especially with milk. We rarely are called to a case of typhoid until the latter part of the first week; water feeding should then begin at once and continue for a period of from 10 to 21 days. This length of time usually carries us into the healing stage of the follicles and Peyer's patches. We may then begin to add at frequent intervals small portions of egg albumin to our water diet, and later, milk, eggs, beef juice or peptone, broths of beef, chicken or mutton. Patients should be nourished every two hours. He asserts that the advantages from the exclusive water diet are as follows: (1) Nothing is introduced to cause irritation of the inflamed intestinal tract. (2) Nothing is administered that can ferment or putrefy, thus diminishing tympanitic distension and the liability to disturbance of sloughs which might cause hemorrhage or perforation. (3) Flushing the stomach, intestinal tract and kidneys with large amounts of water supplies abnormal losses due to increased activity of skin and bowels. (4) Tissue degeneration, as in the heart and kidneys, due to the long continued high temperature is prevented. (5) It aids in temperature reduction, quenches the abnormal thirst, makes the patient much more comfortable and gives him a better opportunity to recover from the intestinal ulcerations caused by this disease.

Infantile Diarrhea: In the *Journal A. M. A.* for August 21, Charles Hunter Dunn considers the treatment of infantile diarrhea, due to intestinal fermentation, with lactic acid bacilli. In practise when it is desired to employ this treatment with living lactic acid bacilli, the physician may use unpasteurized buttermilk from some dairy, or he may prepare his own ripened milk with a culture of the lactic acid bacillus from the nearest dairy; the objection to this is that it is a matter of chance whether or not an efficient strain of the organism is obtained. The artificial tablets of the lactic acid bacillus, such as lactone tablets and similar products, make excellent buttermilk for mere feeding

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purposes, but are not advisable when the purpose is to give as many as possible of the living bacilli. He believes that the action of the living lactic acid bacilli is of great value in that class of infantile diarrheas, designated as fermental, although it is not absolutely a specific treatment. It is possible that these failures may be attributed to the fact that the particular strain of lactic acid bacillus used is not effective against the special strain of fermenting organisms concerned. He believes, however, that this treatment is an extremely valuable resource, and one which is applicable to a very difficult class of cases. It should be tried in every case of infantile diarrhea characterized by saprophytic fermentation, and in every case of chronic intestinal indigestion and atrophy in which the movements are characterized by evidence of fermentation. He believes a ripened milk containing living bacilli to be the best food with which to begin feeding in cases of fermental diarrhea after the initial period of starvation.

Analgesics: The *Medical Council* for September states as to the use of analgesics that it is a mark of high diagnostic acumen to be able to distinguish accurately when to push an opiate, and which one will yield the best results, or when to depend upon acetanilid or one of its allies. Pain from inflammation, or causes tending to produce more or less inflammation, call always for opium. Referred paid and painful reflexes generally demand analgesics first and always. It is a noteworthy fact that maximum doses of either drug here indicated, given for conditions belonging to the other, only "blunt the edge of the pain" if they act at all. Severe mixed pains are sometimes well treated by giving first the usual hypodermic and after a half-hour a few doses of acetanilid at half-hour intervals. Acetanilid has the happy faculty of concerning itself with morbid phenomena. The small doses that yield such capital results in the morbid are virtually nil in the normal. It reduces temperature and sensation only when these are excessive. Acetanilid is indicated in all the sensory dyscrasies of pure nerve pains, ataxia, gastralgia, sciatica, dysmenorrhea, neuralgia, migrain, etc., and acts by modifying the course of the disease, thus bringing about a cure. In the wearisome, racking pains of locomotor ataxia nothing acts more happily than acetanilid, but unfortunately here, as in other protracted diseases, the use of the remedy must sooner or later be discontinued. The drug is not suited for protracted treatment when full doses must be taken, say once a day on an average of three or four times a week, rolling up into years; after months of treatment as here indicated, effects upon the blood show that the remedy must be abandoned in spite of the reluctance of both patient and doctor. However there is in general practise a large and increasing field for acetanilid employed in proper doses. Textbooks generally give needlessly high limits; above six grains is seldom necessary, and this is best given in broken doses. A good rule is to give two or four grains, according to the severity of the pain, and to order two more in half an hour if needed.

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Department of Pharmacy.

Conducted by H. V. ARNY, Ph.G., Ph.D.

Glycerite of Elm: This preparation is strongly urged by P. E. Hommel (*Merck's Report 18,* 234) for recognition in the next pharmacopoeia, being, according to the writer, a palatable, stable, eweet emollient, admirably adapted as a vehicle for alkaline iodids; citrates and acetates; for creosote and similar antiseptics; for simple bitters and of particular value in cases where carbohydrate sweetening agents are interdicted. A recipe for the preparation is given in the article.

Jalap Resin: While the commonly accepted statement in the literature regarding this resin is that the ether-insoluble portion consists of the glucoside convolvulin, while the ether soluble part is the glucoside jalapin, the work of Power and Rogerson (*Brit. & Col. Drug,* through *Merck's Report 18,* 234) shows that the impression that these two substances are definite chemicals is erroneous. In fact, resin of jalap is as complex as is resin of podophyllum, the writers having isolated from it, fatty acids, a physosterol C_{27} H_{46} O; cetyl alcohol; a new compound C_{18} H_{36} O; a dihydric alcohol C_{21} H_{32} O_3 $(OH)_2$ called by the writers ipurganol; methyl-aesculetin; convolvulinic acid C_{15} H_{30} O_8; and complex glucosides yielding on treatment with diluted sulphuric acid beside glucose, formic, butyric, and other acids.

Organic Arsenic Compounds: A useful review of the socalled "arylarsonates" is given by John Humphrey (*Pharmaceutical Journal,* through *Merck's Report 18,* 237). The compounds discussed are atoxyl sodium para-amino-phenyl arsenate, containing 24% As.; *Soamine,* which differs from atoxyl only in the number of molecules of water of crystallization; (22.8% As.); *arsacetin,* acetyl atoxyl and *orsudan,* sodium methyl-acetyl-amino phenyl arsenate, containing 25.4% As. These preparations are used for sleeping sickness and for syphilis.

Resorcin Poisoning: That resorcin is not entirely harmless is shown by Nothen (*La Quinz. therap.* through *Druggists Circular 53,* 443), who reports two cases, one resulting in the death of an infant, after application of a 3% ointment.

Tar Baths are recommended by Dr Karl Saege (*Münch. Medizin Wochenschrift,* through *National Druggist 38,* 279) for certain forms of skin disease. His recipe calls for empyreumatic oil of birch (oleum rusci), 150 grams; mixed with solution of potassium hydroxid 90 grams. To this mixture, alcohol 500 c. c. is added and half of the finished liquid is added to the bath in a thin stream with constant stirring.

The original recipe calls for denatured alcohol, which, however, cannot be used for this purpose in this country. For a small bath use one to two teaspoonfuls of the liquid to a basin of water.

If the liquid is poured in a thin stream, a uniform gray-green neutral bath results which does not deposit tar either on the patient or on the bath tub.

Action of Iodin: Erlenmeyer and Stein (*Apotheker Zeitung,* through *National Druggist 39,* 280) reports that the therapeutic activity of medicines containing iodin, is in direct ratio to the ionic condition of the preparation.

Iodism is due to secondary action of the ions and cannot be avoided, if the action of the iodin is desired.

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Red Phenol: Many explanations have been made of the fact that many reliable makes of crystallized carbolic acid redden on standing. The latest reason is that of Gibbs *(National Druggist 39, 209)*, who says it is due to oxidation of phenol to quinone and quinone derivatives.

Preservative Action of Copper: An article in the *Journal of Industrial and Engineering Chemistry, 1, 676*, by Alfred Springer and Son on the presence of copper in certain samples of certified milk is worthy of medical attention for two reasons: First, because painstaking investigation by the authors, assisted by the owners of the dairy, showed that the contamination entered the milk, through the straining cloths, and that these were affected by the live steam used in sterilizing, the steam coming from a boiler in which a boiler compound containing copper salts was used; this gives a hint of the infinite care required in exact work. Secondly, their investigation showed that copper salts, even in proportion of one part to two million, exert a preservative action. Suspicion regarding the milk was aroused by its remarkable keeping qualities.

Book Reviews.

The Open-Air Treatment of Pulmonary Tuberculosis. By F. W. Burton-Fanning, M. D. Cantab., F. R. C. P., London. Physician to the Norfolk and Norwich Hospital; Honorary Visiting Physician to the Kelling Open-Air Sanatorium. Second edition. Paul B. Hoeber, New York. Price, $1.50 net.

This little book of 180 pages aims to give in a concise way the management of pulmonary tuberculosis and very fairly succeeds, considering the magnitude of the task.

The manual is intended to serve as a *practical* guide, and will, on account of its condensed form, appeal to the busy practitioner.

Reference is made to the recent researches of Sir A. E. Wright and others, and also to some new methods of early diagnosis.

The book is divided into 10 chapters, six being devoted to treatment. As outlined it convinces us that elaborate buildings are unnecessary and in many cases may be a handicap. Chapter V, on "The Selection of Cases for Treatment," is one of the most important and will alone repay one for buying the book. A. F. F.

Physical Diagnosis. By Richard C. Cabot, M. D., Assistant Professor of Medicine in Harvard University; Fourth edition. Revised and enlarged with five plates and 240 figures in the text, 579 pages. William Wood & Company, New York, 1909.

The author states in the preface that this book endeavors to present an account of the diagnostic methods and processes needed by competent practitioners of the present date. He has not attempted to describe such methods as cystoscopy, ophthalmoscopy and laryngoscopy, with which he lacks personal acquaintance. In this particular his book differs from others on physical diagnosis. The plan of the book is simple. The points to be noted in diagnosis of conditions in the different areas of the body are taken up in regular order, proceeding from the head downwards. The author's style is clear and concise, and he arranges his facts in a way easy to remember. Of great value are his paragraphs on differential diagnosis.

So instructive is the major portion of the book and so graphic is the style of the author, that it should be read carefully by every physician. However, the reviewer would like to see in future editions of this work certain chapters brought up to the same high standard as the rest of the book. The chapter on the examination of the nervous system is so superficial that it would have been far better to have omitted it entirely. There

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is no reason why the general practitioner should not have as thorough a knowledge of the common diseases of the nervous system as he has of diseases of the heart. One would expect that a book on physical diagnosis would at least describe in detail the ordinary methods of a neurological examination. This the present book fails to do.

On page 420 the author makes the following statement: "The most essential features of the urine in the diagnosis of kidney disease are: (1) The amount passed in 24 hours, measuring separately the portions passed at night (8 p. m. to 8 a. m.) and in the daytime (8 a. m. to 8 p. m.). (2) The specific gravity. (3) The appearances (optical properties). (4) The reaction to litmus. Much less important than these are the microscopic and chemical examinations (albumin, casts, etc.)." With such a statement the reviewer cannot agree and it seems to him that much harm will result from such teaching. The slothful clinician will find in this statement an excuse for neglecting to make careful urinalyses. A book should be written with the purpose in view of raising the standard of the clinician's work instead of lowering it. Dr Cabot displays the same attitude in his description of gastric analysis when he says that the sediment need not be examined. J. P.

Protozoology. By Gary N. Calkins, Ph. D., Professor of Protozoology in Columbia University, New York. Illustrated with 125 Engravings and 4 Colored Plates. Lea and Febiger, New York and Philadelphia, 1909.

One of the most interesting, important and fruitful chapters in the recent advancement of our knowledge of the causation of disease is that dealing with the protozoa. These unicellular animal organisms are important not only because the number of them directly concerned in the production of specific human and animal diseases is constantly increasing, but also because the solution of a number of problems in general physiology and pathology is dependent upon a knowledge of the general biology of the protozoa. For enlightenment upon the subject the physician and the medical student have been dependent upon the meager and often somewhat inaccurate accounts included in the textbooks upon bacteriology and pathology. The current literature is much too voluminous and too widely scattered to be available to any except those more directly interested, and much of the literature that is available to the medical man, namely that which deals with the etiological relations of the protozoa, does not take into sufficient account the more important biological side of the subject. The latter phase is well treated in certain shorter books: Calkins, "The Protozoa;" Lang, "Protozoa" in "Lehrbuch der vergleichenden Anatomie der wirbellosen Thiere;" and Minchin, "Introduction and Protozoa" in Lankester's "Treatise on Zoology." Valuable as these are to the student of biology they do not claim the attention of those whose interests lie largely in medical literature. The only book which treats of the part played by the protozoa in the production of disease, and which at the same time does not entirely neglect the biological side of the subject, is the short one by Doflein, "Die Protozoen als Parasiten und Krankheitserreger." This appeared in 1901 and is, because of the rapid advancement of protozoology, already somewhat behind the times. Furthermore, it does not sufficiently consider those general biological facts upon which further progress in cellular pathology must largely depend. There has been pressing need, therefore, of a volume which, while treating in some detail the pathogenic protozoa, would at the same time summarize so much of the biology of the organisms as is necessary for a proper and just understanding.

Such a volume is Calkins' "Protozoology," a volume which cannot be too highly commended to those physicians and medical students who wish to acquaint themselves with the progress made in an important field. Of the 10 chapters into which the subject matter is divided five are devoted to the general biology of the protozoa and five to the pathogenic protozoa. Calkins' position as a zoologist is so eminent and his participation in

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certain lines of pathological research has been such that the treatment of the subject is a well balanced and judicious one. The author has approached his theme with an enthusiasm which is apparent in his diction.

A detailed review of the contents of the volume is out of the question. Each chapter is so valuable, not one contains a single unnecessary statement; so that the book belongs, not to that group of which Francis Viscount Saint Alban says "Some books may be read by deputy, and extracts made thereof," but rather among those "to be chewed and digested; . . . . to be read wholly, and with diligence and attention." Particularly important and timely are Chapters III, IV and V, dealing respectively with "Protoplasmic Age of Protozoa," "Conjugation, Maturation, and Fertilization," and "Parasitism."

Paper, binding, typography, and workmanship in general are excellent. The illustrations are numerous, well chosen and well executed. For a first edition few typographical errors have been met with. In the Bibliography Minchin is spelled at one place with an "i" in the final syllable, at another with an "e." The punctuation of the third line of the last paragraph before the classification of the sporozoa on page 57 should be corrected. In some of the illustrations there are slight discrepancies between the lettering of the figure and the accompanying legend: Figure 16, page 45; Figure 84, page 202; Figure 123, page 310. Figure 20, page 65, would be improved by having a legend appended. The reason for beginning the numbering of the pages with 17 is not apparent.

The reviewer, in all humility, takes exception to the use of the word "idiochromidia" in the singular (pages 140, 304); to the substitution of a single vowel for the diphthong in the zoological names of species; and to the inclusion of Rixford and Gilchrist's *Coccidioides immitis* among the protozoa.

Much praise is due to the author for the manner of treatment and for the matter treated, and to the publishers for the general make-up of the volume. Mostly to be congratulated, however, is the medical profession, in that there has been made available to it a volume whose perusal will produce both pleasure and profit. O. T. S.

Obstetrics. A Manual for Students and Practitioners. By David James Evans, M. D., Lecturer on Obstetrics and Diseases of Infancy, McGill University, Montreal, Canada; Assistant Obstetric Physician to the Montreal Maternity, etc. Second edition, revised and enlarged, 440 pages, illustrated with 172 engravings. Lea & Febiger, Philadelphia and New York, 1909.

This work, although modestly called a compend, is in reality a small and concise textbook. The author has eliminated theoretical discussion and states in a few words his views on the subject in hand. The sections on anatomy and embryology are satisfactory.

In his discussions of the toxemias of pregnancy and eclampsia, modern views are given, without detailed discussions of the various theories of etiology. The use of the ophthalmoscope for diagnostic purposes is not mentioned.

In the chapter on normal labor we note the recommendation of formalin solutions when vaginal douches are required. His description of the various operative procedures is brief but always clear. Some of the advice given under this section, however, is questionable. For instance, in the management of labor in flat pelvis he recommends the use of axis traction forceps in the Walcher position if the head does not engage. For the general practitioner version is certainly the operation of choice in this condition. Again the statement that following the perforation in craniotomy the forceps may be safely applied to the head, would surely produce disastrous results if generally accepted.

The author follows Edgar in advising that in face presentation with chin posterior, in multipara, the case should be left to nature with the expectation that anterior rotation will occur. An interesting feature is

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his description of the application of forceps in both the lateral (English) and dorsal (Continental) positions.

The chapters on puerperal infection are excellent, and the advice given is sound.

The book can be recommended as clear, concise, and complete without being verbose. One wishing to review his obstetric knowledge will find the work an agreeable surprise. A. J. S.

Medical Jurisprudence, Forensic Medicine and Toxicology. By R. A. Witthaus, A. M., M. D., Professor of Chemistry, Medical Jurisprudence and Toxicology in Cornell University, and Tracy C. Becker, A. B., LL. B., Counsellor at Law, Professor of Criminal Law and Medical Jurisprudence in the University of Buffalo. Second edition. Volume three. Wm. Wood & Co., New York, 1909.

The third volume of the new edition of Witthaus and Becker's work is considerably enlarged, as compared with the same volume of the first edition. The enlargement is due chiefly to the incorporation of three new chapters, noted below.

J. H. Woodward's chapter upon the "Medico-Legal Relations of Vision and Audition, and of Injuries to the Eye and Ear," remains unchanged.

The chapter upon the "Medico-Legal Relations of Insurance" has been rewritten by A. L. Becker. The article is a short one, but treats with sufficient fullness the limited number of points in life and accident insurance law which have any relation to medicine. The terse definitions, based upon court rulings, references to which are given in the footnotes, are helpful.

E. D. Fisher's article upon the "Medical Aspects of Insanity and its Relation to Medical Jurisprudence," remains unchanged except for the addition of four pages devoted to a simplification in the classification of the clinical forms of insanity, based upon the work of Kraepelin.

In the revision of the chapter dealing with "Mental Unsoundness and its Legal Relations," C. A. Boston is associated with T. C. Becker. The subject, so complex because of differences not only in the medical and legal aspects of insanity but also because of the differences of opinion within the two professions themselves, is improved by a rearrangement of its matter and by the amplification rendered necessary by new legal decisions. The case references to the latter are brought down to date and the more important rulings are abstracted.

Goodwin Brown's chapter upon the "Care and Custody of Incompetent Persons and their Estates," a subject of greater importance to the lawyer than to the physician, has been revised by A. L. Becker. The revision consists chiefly of the addition of late court rulings.

In a new article upon the "Medico-Legal Aspects of Marriage and Divorce," A. L. Becker briefly discusses those medical aspects of the sex relation which may have a bearing upon the annulment of the marriage contract.

The new chapter by A. G. Geyser, upon the "Medico-Legal Relations of X-rays and Skiagraphs," discusses the value of the skiagraph as legal evidence, and the liability of the radiographer for injury produced by the use of the Roentgen rays. Upon the latter point the consensus of legal opinion is important and emphasizes again the old rule of a reasonable degree of learning and skill, reasonable care and diligence, and good judgment. More important still is the ruling that the doctrine of *"res ipsa loquitur"* does not apply in the case of X-ray injury; in other words, the occurrence of the injury cannot be considered *prima facie* proof of negligence.

In the new article dealing with the "Medico-Legal Examination of Blood and other Stains and of the Hair," James Ewing incorporates the results of the most recent researches. Of particular value is the discussion of the technic, the limitations and the value of the precipitin

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reaction and of the phenomenon of complement fixation in the detection of human blood.

In general, the volume has been improved as a work of reference by the more liberal use of bold type for sub-heads; by the inclusion of the most recent legal decisions, reference to which is facilitated by a 54-page "Table of Cases" at the beginning of the volume; and by a very complete general index to Volumes I, II and III. O. T. S.

The Principles of Bacteriology. A Practical Manual for Students and Physicians. By A. C. Abbott, M. D., Professor of Hygiene and Bacteriology, and Director of the Laboratory of Hygiene, University of Pennsylvania. Eighth edition, thoroughly revised, with 100 illustrations, 26 of which are colored. Lea & Febiger, Philadelphia and New York. 1909.

This complete little volume, which comprises 630 pages, has since the last edition been thoroughly revised. Within the past few years many important advances have been made in the great field of bacteriology, references to most of which are found in this work. Much of the work which appeared in the earlier editions has been eliminated and replaced by more important subjects. The various subjects are taken up in a systematic way which can easily be followed by the student. After a brief introduction the technic of the various laboratory methods, preparation of media, sterilization and the descriptions of the more important species of bacteria are taken up. The chapter on infection and immunity is extremely interesting, giving a concise review of the most modern views of this subject. This work throughout is a most excellent one and can be recommended very highly to the student and practitioner. J. C. P.

Manual of the Diseases of the Eye for Students and General Practitioners. By Charles H. May, M. D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York, 1890-1903; Attending Ophthalmic Surgeon to the Mt. Sinai Hospital, New York; Consulting Ophthalmologist to the French Hospital, to the Gouverneur Hospital, to the Red Cross Hospital, and to the Italian Hospital, New York. Sixth edition, revised, with 362 original illustrations, including 22 plates, with 62 colored figures. Price, $2.00 net. William Wood & Co., Publishers, New York, 1909.

The popularity of this concise yet complete little manual is attested by the fact that the sixth edition is now before us. As the fifth appeared in 1907, there is not a great deal to be added, but there are a number of new paragraphs on such subjects as transillumination, the conjunctival tuberculin test, cerebral decompression, etc., and some new illustrations have been added. To those who have not seen an edition since the fourth edition the new illustrations are well worth while. Of these, we might especially mention a series of colored plates of the external conditions of the eye, e. g., chalazion, hordeolum, interstitial keratitis, trachoma, etc.

The book is about as concise and thorough as it could be made. It gives a very complete outline of each condition under the heads of symptoms, etiology, pathology, differential diagnosis and treatment. At the beginning of chapters taking up a new group of diseases, a short reference is made to the most important points in the anatomy of the part, e. g., lids, lachrymal apparatus, muscles, etc.

The operations that may be done upon the eye and surrounding structures are outlined and a number of very good illustrations are given. This makes the book very complete for the student and perhaps unnecessarily so for the general practitioner. A very good index is included.

W. J. A.

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Neurasthenia. By Gilbert Ballet, Professor agrégé à la Faculté de Médecine de Paris, Médecin de l'Hôtel Dieu, Président de la Societé de Neurologie. Translated from the third French edition by P. Campbell Smith, M. D., illustrated with seven figures. Paul B. Hoeber, New York. Price, $2.00 net.

In this edition the author has presented to the American profession an interesting monograph on neurasthenia. He has been able to condense the entire subject into the confines of a single volume and has produced at the same time a concise and up to date elucidation of neurasthenia in its various aspects.

The work is divided into seven sections. The first five deal exhaustively with the nature, etiology, symptomology and prophylaxis, while the sixth and seventh are devoted to a consideration of the treatment of the disorder.

Special emphasis is placed on the diet of neurasthenics and the chapters on psychotherapy, hydrotherapy, climatic treatment, exercise and gymnastics, etc., are indeed timely and important.

The author pays tribute to the Weir Mitchell system of rest cure and in certain cases considers this method indispensable.

On page 360 he presents a tabulated regimen of overfeeding which will be found helpful to those who are called upon to direct a plan of rest cure for these conditions.

All in all, this book will appeal to physicians and students of medicine for its practicability and clearness of expression. The work of the translator is commendable, and the publishers have succeeded in doing their part in a pleasing and dignified manner. H. H. D.

Myomata of the Uterus. By Howard A. Kelly, M. D., Professor of Gynecologic Surgery at Johns Hopkins University; and Thomas S. Cullen, M. B., Associate in Gynecology at Johns Hopkins University. Large octavo of 700 pages, with 388 superb original illustrations by August Horn and Hermann Becker. Philadelphia and London. W. B. Saunders Company, 1909. Cloth, $7.50 net; Half Morocco, $9.00 net.

This volume is in reality a detailed report, from every conceivable standpoint, of the cases of uterine myomata that have been encountered by the authors and their associates in the Johns Hopkins Hospital and several other institutions with which they are connected. Unlike most works of this sort, the book contains no general resumé of the enormous literature upon the subject: the authors have felt that to review it and at the same time to deal adequately with their own cases would be inadvisable. The various types of myomata are first taken up; adenomyomata, however, have been but briefly discussed as their importance and frequency has led to their more thorough consideration in another volume devoted to them alone. Of special interest, in connection with these generally regarded innocent tumors, is the association of malignant changes, especially of sarcomatous transformation which was definitely proved in over one percent of their cases and considered probably present in almost as many more. Only the routine and painstaking pathological examination of a vast number of tumors could possibly have furnished this conclusive evidence that an appreciable number of myomata become malignant, a fact which, if properly appreciated, will certainly do much to alter the complacency with which these growths are too often regarded.

In the discussion of associated pathological conditions, the authors' observations as to the existence of cardiac changes are instructive and tend to disprove the rather general belief that the tumor *per se* is prone to cause myocarditis: they agree with Leopold that the heart conditions are usually functional and are, as a rule, a direct result of the anemia caused by the uterine hemorrhages and are therefore independent of the size of the myoma.

The chapters on operative technic will appeal particularly to the

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practical operator as they contain many suggestions that may prove of great help when an especially difficult case is encountered. Abdominal myomectomy, as a conservative operation, demands attention. In 296 such operations there was a mortality of 5%, practically the same proportion as in their hysteromyomectomies; but in 94 of these patients, in whom pregnancy was considered a possibility, 13 became pregnant, 12 went to term and 19 children were born subsequent to the operation—surely a result worthy of consideration.

The authors' postoperative mortality statistics are really excellent when one considers that the figures include the operations of the early nineties when the modern technic had not been developed and when a hysterectomy was a much more dangerous procedure; even so, the mortality in 1373 cases operated upon up to January 1, 1906, was but 5.75%, while in 238 operations subsequent to that date the mortality has been but 0.85%. A study of the case reports and the illustrations of many of the tumors will show that many of the conditions were of a most serious nature.

The detailed statistics of the ultimate results of the operations have been compiled from an extensive correspondence with the patients and is of great value since it is the best criterion as to the real success of the operative procedures. The analysis of the deaths resulting from operation is also instructive and is very candidly presented.

Throughout the book fairly detailed case reports are given to exemplify the various conditions described; to illustrate the more uncommon ones, the history of each case is included. To some this may seem unnecessary and simply adding superfluous bulk, but it certainly makes the report more complete.

The illustrations are very numerous and one of the best features of the book; even to say that they are the *best* feature would be no disparagement of the text. The beautiful work of the artists does more to convey a correct idea of the subject than any number of words could express. Their drawings are already so familiar to the profession that the simple statement that they have furnished the illustrations is sufficient recommendation of this part of the book.

To one familar with the work of the authors the volume has a special personal interest; to others it will bear evidence of the enormous amount of earnest and painstaking investigation that has been consistently carried out to allow the compilation of such a mass of truly scientific information.

Smithsonian Institution. Bureau of American Ethnology. Bulletin 34. Physiological and Medical Observations Among the Indians of Southwestern United States and Northern Mexico by Ales Hrdlicka. Washington Government Printing Office, 1908.

This report contains a great mass of interesting information concerning these aborigines and illustrates the customs and habits of tribes which will, within a few years in all probability, more or less lose their identity as the country becomes more populated. The researches and observations of the author have been very extensive and have been carefully recorded and tabulated. A large number of photographic illustrations and charts add greatly to the interest of the work.

Acknowledgments

Manual of Chemistry. A Guide to Lectures and Laboratory Work for Beginners in Chemistry. A Textbook Specially Adapted for Students of Medicine, Pharmacy and Dentistry. By W. Simon, Ph. D., M. D., Professor of Chemistry in the College of Physicians and Surgeons of Baltimore, etc., and Daniel Base, Ph. D., Professor of Chemistry in the Maryland College of Pharmacy, etc. Ninth edition, thoroughly revised,

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with 78 illustrations, one colored spectra plate, and eight colored plates representing 64 chemical reactions. Lea & Febiger, Philadelphia and New York.

Parenthood and Race Culture. An Outline of Eugenics. By Caleb Williams Saleeby, M. D., Ch. B., F. Z. R. Edin., Fellow of the Obstetrical Society of Edinburgh, etc. Moffat, Yard & Co., New York, 1909. Price, $2.50 net.

American Practice of Surgery. A Complete System of the Science and Art of Surgery, by Representative Surgeons of the United States and Canada. Editors: Joseph D. Bryant, M. D., LL. D., and Albert H. Buck, M. D., of New York City. Complete in eight volumes. Illustrated. Volume six. Wm. Wood & Co., New York.

The Practical Medicine Series. Comprising Ten Volumes of the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of Gustavus P. Head, M. D. Volume VI. General Medicine. Edited by Frank Billings, M. S., M. D., Head of the Faculty of Rush Medical College, Chicago, and J. H. Salisbury, M. D., Professor of Medicine, Illinois Post-Graduate Medical School. Series 1909. The Year Book Publishers, Chicago, Ill.

Minor and Operative Surgery, Including Bandaging. By Henry R. Wharton, M. D., Surgeon to the Presbyterian Hospital, and the Children's Hospital, etc. Seventh edition, enlarged and thoroughly revised, with 555 illustrations. Lea & Febiger, Philadelphia and New York, 1909.

A Treatise on the Principles and Practice of Medicine. By Arthur R. Edwards, A. M., M. D., Professor of the Principles and Practice of Medicine and of Clinical Medicine and Dean of the Faculty in the Northwestern University Medical School, Chicago; Attending Physician to Mercy, Wesley Hospitals, etc. Second and thoroughly revised edition. Illustrated with 100 engravings and 21 plates. Lea & Febiger, New York and Philadelphia, 1909.

A Text-Book of Practical Therapeutics, with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M. D., B. Sc., Professor of Therapeutics and Materia Medica in the Jefferson College Hospital, etc. Thirteenth edition, enlarged, thoroughly revised, and largely rewritten. Illustrated with 122 engravings and four colored plates. Lea & Febiger, Philadelphia and New York, 1909.

Magnesium Infiltration. By John Aulde, M. D., Philadelphia, Pa. Reprinted, with additions, from the Wisconsin Medical Recorder, 1909. Price, 25 cents.

Philadelphia General Hospital Reports. Vol. VII, 1909. Edited by Herman B. Allyn, M. D. Published by the Department of Public Health and Charities, Philadelphia, Pa.

A Report of the Delegation from the National Fraternal Congress to the International Congress on Tuberculosis. Twenty-third Annual Meeting, Boston, Mass. Aug. 16, 1909.

California Eclectic Medical College, Los Angeles, California. Thirty-first annual announcement. Session 1909-1910.

International Institute of Agriculture at Rome. Letter written by David Lubin to Hon. George C. Perkins and Hon. Frank P. Flint relative to the International Institute of Agriculture at Rome. June 8, 1909.

Publications of the Public Health & Marine-Hospital Service of the United States. 1. Hookworm Disease in its Relation to the Negro. By Ch. Wardell Stiles. 2. Studies upon Leprosy. By Walter R. Brinckerhoff, S. B., M. D., and W. L. Moore, M. D.

Proceedings of the Pathological Society of Philadelphia. September, 1909. New Series. Vol. XIII. No. 3.

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Correspondence.

AN APPEAL
TO THE MEDICAL PROFESSION OF THE WEST AND SOUTH.

To the Editor:

Up to the present time there has not been a concerted effort made to collect and preserve historical data in regard to the origin, evolution and personnel of our profession in this part of our country. The result of this delinquencey has been the total loss of much material that should have been preserved, especially pertaining to medical schools and societies, and biographical matter in connection with the practitioners and teachers of medicine of by-gone days. A good deal of material of this character is still obtainable if a systematic effort is made to locate and preserve it. It is in the possession of individuals, families and private libraries and will eventually be lost. *The Western Association for the Preservation of Medical Records* was organized in May, 1909, for the purpose of collecting the historical and biographical records of the profession of the West and South. We wish to preserve anything and everything pertaining to Western medicine and medical men, and are anxious to enlist the active help and support of every member of the profession who is in sympathy with our aims. We want every one to become associated and identified with the work of our Association. There are no fees or obligations of any kind. We have made arrangements with the Lloyd Library, Cincinnati, O., for the proper housing of the material collected. The latter will be systematically arranged, catalogued and properly preserved so that it can be made available for research work. We are particularly anxious to obtain:

1. Medical Journals published in the West prior to 1880;
2. Medical books and pamphlets written or published in the West;
3. Manuscripts and autographs of early Western physicians;
4. Old diplomas and other documents of a medical character;
5. Proceedings of medical societies;
6. Reports of hospitals and other medical institutions;
7. Catalogues and Announcements of Western medical colleges of all "schools;"
8. Biographies and portraits of Western physicians;
9. Information and material of any kind pertaining to medicine and medical men and affairs in the West;
10. Curios of a medico-historical character.

All contributions should be sent in care of the Librarian. In view of the fact that we are performing a labor of love and have no funds, our friends and associates will readily understand why all contributions sent by express or freight should be prepaid, so that no expense may accrue to the Association. The necessary expenses of the Association are at present being met by voluntary contributions of its organizers.

May we not count upon *your* active help and support? We would like to hear from every member of the profession who is interested in the proposed work.

C. A. L. REED, M. D., Chairman.
OTTO JUETTNER, M. D., Secretary.
A. G. DRURY, M. D.,
Librarian,
710 W. Eighth St., Cincinnati, O.

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Medical News

Joseph Placak, for several years Medical Director of the Tuberculosis Sanatorium at Warrensville, Ohio, has handed in his resignation, to take effect October 1, 1909.

E. L. Lowthian, formerly on the house-staff of Lakeside Hospital and later of the U. S. Marine Hospital, has opened an office at 3200 Library Ave. S. W.

St. Alexis Hospital Alumni Association met at the Hollenden, Sept. 9, 1909. The program was as follows: Report of a Case of Dementia Precox, J. S. Tierney; The Etiology, Symptoms and Treatment of Lateral Currature of the Spine, J. E. Tuckerman.

A. B. Eisenbrey, formerly of the resident staff of Lakeside Hospital, Cleveland, has accepted the position of Instructor in Pathology at the University and Bellevue Hospital Medical College, New York.

The U. S. Marine Hospital, Cleveland, is anxious to obtain information of any cases of pellagra in Northern Ohio.

Chas. W. Stone, formerly Medical Resident at Lakeside Hospital, has returned from a trip abroad and opened offices at 764 Rose Bldg.

G. R. Sherwood of Elyria has moved to Los Angeles, California.

The Staff of the Elyria Memorial Hospital held their regular monthly meeting September 20, 1909.

Ed. Ickes, Fremont, is in Germany for a few months' study.

W. H. Leet of Ashtabula has just returned from a three weeks' trip down the Erie Canal and Hudson River.

B. M. Tower of Ashtabula has recently returned from a vacation at Chautauqua.

The Ashtabula Co. Medical Society held its forty-fifth regular meeting in Ashtabula, Sept. 7, 1909. G. S. Anderson of Andover presented a paper on Rheumatism.

R. S. Walker of Toledo is in New York taking special work in genito-urinary surgery.

N. W. Brown, now located in Toledo, but formerly of Cleveland, will leave for China the latter part of September to take up the work of a medical missionary. He goes to Hankow, where he will take charge of a medical school and a hospital, a splendid opportunity for a young man of his ability.

The Academy of Medicine of Toledo and Lucas County held the first meeting of this season Friday, September 17, 1909, when M. D. Eubank of Huchow, China, gave an address before the Medical Section on "Ancient and Modern Medicine in the Chinese Empire." Following the meeting a smoker was given at the Boody House in appreciation of the departing section chairman, N. W. Brown.

The Erie County Medical Society met at Sandusky, Wednesday, Sept. 22, 1909. The program was as follows: (1) Our Tubercular Brethren, H. C. Schoepfle; (2) The Care of Uncomplicated Fractures of the Long Bones, through the Shaft and at the Joint, W. H. Pollock.

The Huron Co. Medical Society met Sept. 16, 1909, as the guest of Miss Coe of the Norwalk Hospital. A paper upon the Diseases of the Thyroid Gland was presented by John A. Sipher. Those present were afterwards entertained at luncheon by Miss Coe.

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The Richland County Medical Society met Wednesday, Sept. 22, 1909, at Mansfield, Ohio. The members dined together at the Southern Hotel; following the dinner a short smoker was held, after which the following program was presented:

Some Aspects of Gonorrhea in the Female, W. H. Weir, Cleveland, discussion opened by D. W. Peppard. John Phillips of Cleveland, who was to give an address upon Typhoid Fever, was unable to be present.

The Defiance County Medical Society held a special meeting in Defiance, Sept. 8, 1909, at which the following program was rendered: Address, W. H. Snyder, Toledo; Address, James A. Duncan, Toledo; Head Injuries from a Neurological Standpoint, Louis Miller, Toledo; The Diagnosis of Lung Lesions, R. P. Daniells and H. W. Dachtler, Toledo; Prostatic Hypertrophy, its Effects and Treatment, John G. Keller, Toledo; Concerning Diabetes and its Therapy, Louis A. Levison, Toledo; Terminal Events in Gall-Stone Disease, C. N. Smith, Toledo; Lymphadenoid Tissue of the Throat in its Relation to Acute and Chronic Toxemias, Thos. Hubbard, Toledo; The Prevention of Blindness, C. B. Booth, Toledo; The Present Status of the Surgical Treatment of Goiter, J. H. Jacobson, Toledo.

The Alliance Hospital was bequeathed a legacy of $500.00 by Mrs. H. R. Trollinger of Homeworth, Ohio, who died Sept. 12, 1909.

Battle & Co. of St. Louis, Mo., have issued No. 10 of their dislocation charts and will send it and all back numbers to physicians on request.

The Muskingum County Medical Society held its annual meeting at the Clarendon Hotel, Zanesville, Ohio, Sept. 8, 1909. The following officers were elected: President, R. B. Bainter; Vice President, A. W. Squires; Secretary and Treasurer, J. R. McDowell; Censors, W. C. Bateman, W. A. Melick and G. Warburton; Delegate, H. F. Sutton. The election was followed by a banquet given by the retiring President, H. R. Geyer.

I. M. Wiseman and J. R. McDowell attended the meeting of the County Secretaries at Columbus, Sept. 22, 1909.

At the Republican Primaries in Zanesville the following physicians were nominated: For Mayor, A. H. Forrell; for Member of School Board, E. C. Brush; for President of Council, W. C. Watters; for Councilman at Large, J. M. Pedicord.

The Mississippi Valley Medical Association will hold its thirty-fifth annual meeting at the Southern Hotel, St. Louis, Mo., October 12, 13, 14, 1909. According to the preliminary program, the Address in Medicine on "Mistakes in Medical Practise," will be given by Sherman G. Bonney, Denver, Colo., and the Address in Surgery on "Modern Surgery of the Digestive Tract," by John B. Deaver, Philadelphia, Pa. A Symposium upon Exophthalmic Goitre will be given, those taking part being S. P. Beebe, New York City; George W. Crile, Cleveland, O.; J. J. Jacobson, Toledo, O.; Allen B. Kanavel, Chicago, Ill.; Albert J. Ochsner, Chicago, Ill.; Herman Tuholske, St. Louis, Mo.; and Arthur R. Elliott, Chicago. A lengthy program of papers upon other interesting topics is also to be presented.

The Queen Alexandra Sanatorium (under Her Majesty's patronage), which is to be opened early next autumn, is destined to rank high in the list of the *National Sanatoria* of cosmopolitan Davos. But though national it will be unique in welcoming patients from all parts of the world, and not only from the Empire but from the States, as it was

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founded for the benefit of all English-speaking nationalities, the only qualifications needed being evidence of medical suitability and of inability to meet the heavier cost of treatment at hotels or private institutions. The following notice, which appeared in the British Medical and other journals, has been forwarded to us by the joint honorary secretary, Dr William Ewart, as of special interest to the American public and profession: "The prospective opening of the Queen Alexandra Sanatorium at Davos for the reception of patients early in this autumn was announced from the chair at the sixth annual meeting of the Council, held at 11, Chandos Street, Cavendish Square, W., on July 16th, by the President, the Lord Balfour of Burleigh, K.T., P.C., who has labored so long and successfully in the difficult task of raising funds. A splendid donation of £25,000 lately received from a munificent sympathizer, who desires that his name shall not be published, not only supplies the amount required to complete the work and to open the sanatorium free from debt, but provides means for its scientific equipment and for future extensions. It should be mentioned that Lord Strathcona, with his well-known zeal in the promotion of all charitable and useful works, not long ago gave a donation of £2,000 for the purposes of the sanatorium. For the present the sanatorium will accommodate 54 patients, all in single rooms. But the public rooms are designed for a full complement of 120 patients. The Davos Invalids' Home, the original foundation of the late Mrs. Lord, which for so many years was the only representative of our national charity in Davos, has now ended its task and fulfilled the purpose for which it was initiated—that of developing into a National Sanatorium. The Home had been granted Her Gracious Majesty's patronage as far back as 1899."

Deaths.

Henry Morrin, Toledo, Ohio, died September 2, aged 64.

Homer M. Hamilton, Columbus, Ohio, died September 2, aged 39.

John Walker Neil, Delaware, Ohio, died August 4, aged 74.

John T. Martin, Sandusky, Ohio, died August 16, aged 65.

Oliver D. Paine, Youngstown, Ohio, died Sept. 1, aged 90.

Joseph F. Bazill, Crayton, Ohio, died Sept. 1, aged 58.

Philip E. Hepler, Bridgeport, Ohio, died Sept. 6, aged 37.

Edward P. Gould, Sheridan, Ohio, died Sept. 5, aged 65.

G. N. Harcy, one of the pioneer physicians of Bellevue, Ohio, died at his home in that city Sept. 14, 1909, aged 79 years. He was a man of more than ordinary ability, of fine literary talent, a skilled physician, a classical scholar, and a linguist of note. Born in Budapest, Hungary, he obtained a liberal education, and taking up the study of medicine, he graduated with honor from the leading medical school of his native city.

While serving as a physician in the army, he formed the acquaintance of Louis Kossuth, the patriot, and revolutionary leader. Dr Harcy decided to cast his fate with his exiled chieftain, and came to America with Kossuth as a member of his body-guard in 1852.

He first located in New York City, later going to Philadelphia, and in 1862 moved to Ohio. After devoting more than a quarter of a century to an active practice, he retired to private life 14 years ago.

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The Cleveland Medical Journal

VOL VIII NOVEMBER, 1909 No 11

Ten Years' Progress in the Field of Protein Metabolism

By OTTO FOLIN, Ph. D., Boston.

It is not my purpose to attempt to make a comprehensive review or resumé of the most important papers which have appeared in the field of metabolism during the past ten years. The field is entirely too large for such a treatment, and the progress made in nearly every corner of the field has been altogether too rapid to permit of any such panoramic presentation of the important details of facts and changes of opinions. I shall confine myself to a simple, elementary exposition of the recent development of certain fundamental ideas as to the rôle of protein in animal metabolism.

The teachings concerning protein metabolism as most of you probably remember them from your student days were essentially the teachings of Professor Voit in Munich, who died only three or four years ago. Voit has been generally regarded not only as the greatest contributor of facts and exponent of theories in the field of protein metabolism, but also as essentially the founder of the science.

This is, I think, not a correct estimate of Voit. Voit was a great and prolific investigator but was not particularly original. The fundamental idea of nitrogen equilibrium, which constitutes the keynote to the past as well as to much of the present teachings concerning protein metabolism originated rather with the great chemist, Liebig.

Read before the Section of Experimental Medicine of the Academy of Medicine of Cleveland October 8, 1909.

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Voit first came into prominence by proving untenable Liebig's theory of protein metabolism—the hypothesis that muscular work and energy are obtained only through the chemical decomposition of the highly complex and unstable protein molecules. It is to be noted, however, that the proof furnished by Voit was only an elaboration of the idea, advanced by Liebig himself, that the nitrogen in the urine can be regarded as a measure of the protein destruction within the body. With this idea once fairly enunciated and accepted it became merely a matter of a few nitrogen determinations to prove that the daily destruction of protein within the body was not at all proportionate to the amount of work performed. Those nitrogen determinations were made by Voit.

To my mind the false theory of protein metabolism advanced by Liebig now appears far more interesting and attractive than the arbitrary, unfounded, and practically useless prescriptions of Voit which followed Liebig's theory, and which we only just now are beginning to abandon.

Liebig's theory was extremely simple, yet artistic and plausible, and withal in excellent harmony with the established facts. Liebig himself was authority for the then accepted doctrine that all the proteins are practically alike, that they are essentially a complex, unstable, nitrogenous product, synthesized by plants and by plants only, and then incorporated by animals into their own body substance, and finally decomposed, setting free energy convertible into muscular work. If more protein is consumed than is necessary for the muscular work the excess is destroyed and liberates heat. But since fats and carbohydrates are easily oxidized within the body with the liberation of heat, it is not economical to produce heat without oxidation by the direct spontaneous decomposition of the proteins. Here we have the original and clearly defined meaning of the familiar term, luxus consumption of protein, a term which has since been made to stand for many different conceptions and interpretations, and which at the present time has virtually no meaning at all.

Liebig's theory of protein metabolism was advanced before the principle of the conservation of energy had been established, and naturally it could not long survive the advent of that principle.

In spite of the dominant name of Voit in the metabolism literature of the past 30 or 40 years it seems to me that the in-

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vestigations, problems and conceptions of the present period connect better with the teachings of Liebig than with the empirical, barren prescriptions, and hopelessly lost and more or less muddled speculations of Voit. Liebig's theory was based on the conception that native proteins are essentially alike and that these few proteins are synthesized by the plants. In harmony with that theory the whole phenomenon of digestion became merely a matter of bringing insoluble protein into solution so that it could be absorbed and reach the tissues as nearly as possible in its original condition or with its chemical constitution unchanged. This simple naive conception of digestion has undoubtedly dominated the literature clear up to the beginning of the last ten-year period. It easily survived the extensive investigations into the chemistry of digestion inspired by Prof. Kühne in Heidelberg during the 70's, 80's, and 90's. Kühne discovered accidentally leucin and tyrosin among the digestion products, and for more than 20 years he and his pupils worked with trypsin, as well as with pepsin, but they all failed to get away from the idea that the function of protein digestion must necessarily be to bring about absorption of practically intact protein molecules. You will recall that as late as 1901 Cohnheim, when he discovered erepsin, was really looking for a ferment which should recombine albumoses and peptones into native but soluble and absorbable albumin. At that time, in 1901, the present period of rapid advancement in the field of metabolism had however already begun. The work of Kutscher on the trypsin digestion, published one or two years earlier, had proved with one stroke that the effect of the pancreatic digestion on the proteins is not so much or not only to dissolve them but to break them up until they have lost practically all their identity as protein.

In the meantime the earlier conception of the essential identity of all proteins had gradually been replaced by comparatively exact knowledge of the fact that there exist many different varieties. The discovery of phosphorus in the nucleins by Miescher, and in casein by Lubavin, and the discovery of the protamines and nucleic acids, chiefly by Kossel and his pupils, opened the way for the protein investigations of more recent years. The result of these later investigations into the chemistry of the proteins must in a measure be familiar to you all. We now have every reason to believe that there exist scores of different kinds of proteins, and the question has been fairly raised whether they

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may not exist by hundreds and thousands, not to mention any larger figures. The importance of this new protein chemistry for a proper understanding of our knowledge of protein metabolism and for the further development of it is not yet perfectly clear. It seems probable that the protein chemistry and protein metabolism will remain more or less indissolubly connected in the future as they have been in the past. I cannot, however, go into a detailed discussion of the present activity in the study of the proteins. The basis of that study is the skill which has been acquired in finding and recognizing the different simple substances which are obtained when the protein molecules are torn asunder and destroyed. Just as the assayer takes a mineral and determines the amount of gold, silver, and lead which it contains, so we have now schemes for assaying the different proteins, and we determine their percentage composition in terms of some 15-20 different amino acids. These amino acids can be united into an almost unlimited number of combinations; combinations which may seem very much alike yet which in percentage composition or in the arrangement of the amino acids may be quite different. Here we have for the first time in visible, tangible form the reason why the proteins of the ox may be quite different from the proteins of the chicken, of the dog, or of man, and here we have also a definite starting point for the inquiry as to how the proteins of the ox or of the chicken can be transformed into the proteins of the dog or of man.

The old assumption that plants alone can manufacture proteins is no longer warranted. It has been replaced by the highly important problem as to the extent and character of the protein formation in animal metabolism. The fact that the animal organism is in possession of ferments capable of breaking up the proteins into their simplest component parts, the amino acids, carries with it a clear and unmistakable hint as to the chemical reactions which may be involved in the transformation of the ox proteins into the protoplasm of the dog or of man. That hint has been the basis for a considerable number of important investigations reported during the past few years, and the results obtained, particularly the results of Henriques and Hansen, seem to prove that amino acid mixtures obtained by the pancreatic digestion of proteins can be utilized as the exclusive nitrogenous food, and therefore must be used in the building up of body protein. This is of course only the beginning, but it foreshadows clearly the coming

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of a flood of papers on the synthesis of protein within the animal body.

If the protein metabolism in an omnivorous animal like man involves the consumption of hundreds of different proteins, and if that metabolism involves as a preliminary step the conversion of those proteins into simple amino acids, it may after all make very little difference what protein is consumed. The complexity and diversity of the original material may be overcome by the levelling effect of the digestion. That is, however, only one way of looking at the problem, and not the only way. In the first place the fact that amino acids are produced by the digestion of the proteins is no proof that the food proteins are completely converted into such products. On the contrary we have reasons for believing that the proteins are not completely converted into amino acids as a preliminary to absorption. The uniform failure to find appreciable quantities of amino acids in the blood at the height of digestion is a gap which must be cleared up more satisfactorily than has yet been done before we can feel sure that the normal amino acid formation is very extensive. The peculiar behavior of cystinuria patients toward protein, on the one hand, and toward the pure amino acid cystin, on the other, has left us with an unexpected piece of circumstantial evidence pointing to the absorption of the protein sulphur in some other form than cystin. When cystin is fed its sulphur is converted into sulphate; when protein is fed a part of its sulphur is eliminated, not as sulphate, but as cystin; hence the conclusion seems almost unavoidable that the cystin which appears in the urine could not have existed as free cystin in the intestinal tract. But if the levelling effect of the digestion does not completely cover the sulphur contents of protein there is no reason for assuming that it can cover the nitrogen contents.

In the second place, even if the protein digestion should result in a very extensive or in a quantitative transformation into amino acids as a preliminary to absorption, we are still left with the possibility that certain amino acid mixtures might be far more advantageous for the nutrition of an animal than other mixtures. This is an idea which has been advanced by a number of investigators and of course merits attention. Its value must be carefully worked out along the lines begun by Henriques and Hansen, though from the nature of the problem it would follow that the results obtained with one kind of animal have no

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bearing on the results which might be obtained with another. The amino acid mixture most suitable for the maintenance of the rat might prove the least desirable for the dog or the cat, or at least for the dog. The idea that certain amino acid mixtures should be particularly favorable is not necessarily true. Carried to its logical conclusion one would naturally suppose that the amino acid mixtures represented by an animal's own body would be the most suitable of all. In other words by the consumption of its own species an animal would obtain the most economical supply of protein material. Absurd as this conclusion on the face of it appears, facts purporting to support it have already begun to appear. In a long paper published a few months ago from Lüthje's clinic in Heidelberg the claim is made that the minimum level of nitrogen equilibrium in dogs is obtained when they are fed on dog meat. The reasoning back of such experiments may seem like good chemistry, but I doubt whether it will turn out to be good biochemistry.

I have so far briefly indicated certain fundamental points of view now prevailing in the field of protein metabolism, and how those views have been derived from excellent experimental work on the chemistry of the proteins, on their digestion, and on their relation to the maintenance of nitrogen equilibrium. The problem of protein metabolism is at the present time only in a very minor degree a question of nitrogen equilibrium. The establishment of the lowest possible level at which nitrogen equilibrium can be indefinitely maintained has in a large measure lost its importance with the establishment of the fact (for which we are chiefly indebted to Prof. Chittenden) that the level attainable lies far below the level of protein consumption found even among the poorest classes of society. The chief value now to be derived from attention to the protein content of diets is clinical and negative at that. The fact that nitrogen equilibrium can be maintained with only five or six grams of nitrogen should leave the physician free to prescribe the food for his patients practically without any reference to its total protein contents.

The metabolism investigations of the present and of the future for some time to come must be concerned with more difficult problems than that of the total nitrogen balance. The phenomena of protein metabolism are necessarily being subdivided into a number of different chapters.

The old subdivision of metabolism into anabolism and cata-

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bolism was chiefly a philosophical concept, and had very little connection with the experimental side of the science.

The subdivision of metabolism into food metabolism and tissue metabolism, a subdivision which could not have been made ten years ago, is of a different kind. It takes account of the fact, now reasonably well established, that waste products found in the urine are in part dependent upon the protein contents of the food, and in part dependent only on the size and condition of the body. That the one should be very variable while the other should turn to be relatively constant follows as a matter of course, for it was this very distinction between the two sets of waste products in the urine which led to the assumption of the two sets of metabolism processes.

At present we have come to somewhat of a standstill in the further development of this dual concept of protein metabolism. The direct catabolism of the food protein seems still simple enough and clear enough. The removal of a variable quantity of unnecessary nitrogen by means of hydrolysis and urea formation seems like a sound doctrine which has easily outlived the few adverse criticisms brought up against it. The fact that the percentage distribution of the urinary nitrogen and sulphur depends first of all upon the amount of protein taken with the food may be regarded as definitely established.

Certain differences of opinion prevail in regard to minor details, for example, as to the exact rôle played by uric acid among the products of the exogenous metabolism. Such differences of opinion are relatively slight, and may be even dependent on accidental circumstances affecting experimental results. They do not, however, materially affect the proposition that the greater part of the protein nitrogen and sulphur ingested with the food is split off and eliminated by means of special hydrolytic processes, processes which may be regarded as a preliminary treatment of the food for storage or for subsequent oxidation in the tissues.

In the field of the tissue metabolism the situation seems much less clear, and so far as actual recent work is concerned it has dealt chiefly with the origin and biochemical relationship of kreatin and kreatinin.

The close chemical relationship between these two products and the fact that one is abundantly present in the tissues while the other is found in the urine in amounts depending directly upon

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the size of the body, i. e., upon the amount of tissue present, left originally no ground for doubting that the kreatin in the muscles is the direct mother substance and precursor of the kreatinin in the urine. This may still turn out to be the fact, but so far no one has been able to show that the animal body is able to convert kreatin directly into kreatinin. In spite of all the work and all the interesting data which have been brought out during the past few years concerning kreatin and kreatinin no one has been able to clear up the problem of their relationship or of their origin.

Personally I still adhere to the opinion expressed three or four years ago that we do not yet know whether kreatin should be regarded as a waste product or a food. The experiments of Melanby as to the relationship between the development of the liver and the presence of kreatin in the muscles are interesting and very important if they should be confirmed, but I do not believe that his interpretation will prove to be correct or generally acceptable. In speaking of kreatinin in distinction from kreatin as a strong base Melanby is in error, and has evidently merely accepted old statements in the literature as to that distinction. Kreatinin can form salts only with strong mineral acids, and its basicity is, I think, a negligible factor. Aside from the hypothesis which I advanced some years ago concerning the significance of kreatin in muscles as essentially a food rather than a waste product, there is one other possibility which I think has not yet been clearly and definitely considered. It is possible that kreatin might be a postmortem product and that free kreatin does not exist in living normal muscles. It is conceivable that living muscle substance contains a precursor of the two which is neither the one nor the other, a substance which normally and gradually gives rise to kreatinin, while in abnormal cases and in death it gives rise to kreatin. I had hoped that by this time I might have had some experimental evidence bearing on this point, but other work has interfered.

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Gastric Ulcer

By C. F. HOOVER, M. D., Cleveland.

Rational treatment of gastric ulcer must be based on a careful consideration of the pathogenesis of the ulcer and the attending alterations of motor and secretory functions of the stomach.

To imply from this prefatory remark that the pathogenesis of peptic ulcer is understood, would surpass our present knowledge of the subject, but we can determine clinically whether we are dealing with a peptic, perforating ulcer or with an ulcer of some other origin. The synonyms employed in most of our textbooks supply the attributes which serve to differentiate this ulcer from all others, viz., simple, round, peptic, perforating. The ulcer occurs singly as a rule. It is accompanied by an exalted secretory function of the glandular mucosa and is therefore a peptic, or chloropeptic ulcer; and it is a perforating ulcer because it is very refractory to the healing process.

Both clinical and experimental knowledge confirm this differentiation of the peptic ulcer from ulcers of other origin. Clairmont's[1] series of experiments serve to show the readiness with which the gastric mucosa will heal provided the injury occurs in a stomach which has a normal musculature and normal mucosa. Clairmont produced ulcers in the stomachs of dogs by dissecting off one cm. square of the mucous membrane, then burning the base of the ulcer with acid and finally ligating the arteries and veins in the vicinity of the ulcer. In spite of this severe treatment the ulcers healed in about three weeks and in most instances the site of the ulcer showed no histological differences from other portions of the gastric mucosa. So complete was the reproduction of the glandular mucosa that microscopically the site of the former ulcer could not be determined. The same result followed in another series of experiments in which gastro-enterostomy was performed at the same time the ulcer was produced. Clairmont makes the following deductions: 1. That to the present time no one has been able to produce a genuine ulcer, i. e. loss of mucosa without tendency to heal, as all these cases tended to heal. 2. In the cardiac portion these artefacts heal more promptly than in the pyloric region. In the cardia, healing occurs within three weeks, whereas in the pylorus healing requires about six or seven weeks. 3. That healing is unmodified by gastro-enterostomy, early or late, and the statement that gastro-enterostomy trans-

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forms an ulcer to the status of an open wound, i. e. changes an unhealing loss of substance to a healing loss of substance is refuted.

Clinically we find that gastric ulcers of traumatic origin heal very promptly without any of the pain and alterations in the motor or secretory functions of the stomach. It is very doubtful if trauma alone will account for any round ulcer of the stomach. When gastric ulcer persists for a long time after an injury, it is presumed that the injury must be accompanied by hyperchlorhydria. When the ulcer is not tuberculous or syphilitic or of the peptic variety we know from an abundant clinical experience, that recovery is prompt without the aid of any treatment, even when a liberal diet is resumed before an erosion could possibly heal. By this statement I do not wish to be understood as advocating an unrestricted diet in such cases; but as soon as the bleeding ceases the patient can be given vegetable puré, scraped meat, eggs and milk. If this diet is tolerated without any distress and the injury has occurred in a stomach previously healthy, a liberal diet can be safely given at the end of a week. Erosions of the gastric mucosa are sometimes traceable to circulatory disease, but in such cases healing takes place very promptly as in traumatic cases. When dyspepsia, pain and hemorrhage occur in elderly persons with arteriosclerosis we must not assume that the dyspepsia and pain result from the erosion which has caused the bleeding. The erosion in such cases is merely a pathological symptom due to the vascular disease. The pain, stasis of chyme, and vomiting are caused by the altered blood circulation in the stomach, and are not caused by erosion. These cases of sclerosis of the gastric arterial supply often lead to a false diagnosis of ulcer or carcinoma, on account of bleeding which attends the symptoms of secretory and motor defects. The pain may be intense, but it is not caused by the accompanying erosion but by the spasm of the gastric wall, the pylorus and cardia, a clinical symptom to which the term intermittent claudication has been applied, on account of its analogy with the symptoms which occur in the extermities of patients suffering from arterial disease. Such a patient suffering from bleeding, pain and vomiting would require treatment directed toward relief of the splanchnic circulation. The erosion can be disregarded as a serious factor.

I dare say that many of us can recall instances of elderly patients in whom the symptoms of dyspepsia and hemorrhage sug-

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gested a diagnosis of carcinoma or ulcer and the patients lived long enough afterward to disprove the diagnosis.

Hematemesis occurs rarely in acute infectious disease such as typhoid and pneumonia. When such erosions, due to bacterial growths in the mucosa, as has been shown by Diculafoy[2], do occur, the patients do not suffer from the gastric erosions; the stomach distress is caused by the general infection. I have had only one such experiance with a typhoid patient. The patient recovered from the typhoid after an illness of six weeks. Profuse hematemesis occurred in the beginning of the second week of the disease but there were no more gastric symptoms than one ordinarily sees in the course of typhoid fever. The feeding of the patient was not interrupted.

I had a similar experience with an elderly woman during an attack of lobar pneumonia which proved fatal on the tenth day of the disease. Severe hematemesis occurred on the fifth day of the pneumonia, but there were no symptoms which could be ascribed to an erosion of the stomach mucosa and the diet was not modified on account of the hemorrhage. Exactly the same experience, with lack of other symptoms than hemorrhage, occurs after abdominal operations.

Although I do not wish to lay down any rules for the treatment of hematemesis, I think our clinical experience shows that when vomiting of blood is the only symptom which can be ascribed to an erosion of the gastric mucosa in traumata, infections and diseases of the vascular supply of the stomach, we can with safety disregard the erosion so far as any direct treatment of the stomach ulcer is concerned. Under such circumstances it is not the erosion which requires treatment, but the basic disease which caused the erosion should enlist our therapeutic efforts.

Ulcerations of the stomach, which demand treatment as ulcers, can be divided into three groups. I am compelled to make this classification from my own clinical experience and, so far as I am able to learn from the literature on the subject, it seems very probable that this classification may form a good working-basis for the care of chronic disease of the stomach associated with ulceration. These three groups are: first, syphilis; second, chronic peptic ulcer in patients who show no signs of congenital asthenia; and third, chronic peptic ulcer occuring in patients with congenital asthenia.

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Syphilis must not be forgotten in any case of gastric ulcer. When there is any history or objective sign which suggests the possibility of syphilis, potassium iodid and mercury should both be employed. A very striking fact in syphilis of the stomach is the tolerance for only small doses of the iodid of potash. This was clearly illustrated in one patient who came under my observation six years ago. This man had syphilis 18 years prior to the time of his stomach symptoms. The stomach was greatly dilated, the lower border reaching to within two inches of the symphysis pubis. There was retention of chyme and poracous vomiting. The patient was greatly emaciated. With only three grains of potassium iodid thrice daily, the lower border of the stomach gradually rose to the level of the umbilicus. Within six months the stomach regained its normal dimensions and the patient was able to eat a liberal mixed diet without any distress. During the entire period of the treatment, which lasted several months, this patient was unable to take more than five grains of potassium iodid three times a day. This patient had, I believe, a gumma at the pylorus, but in another case of syphilitic ulcer of the pylorus attended with severe pain, hemorrhage and retention of chyme with normal gastric acidity, I had the same experience. Only small doses of potassium iodid were tolerated but the results were very satisfactory. The pain, bleeding and stasis of chyme were all relieved. I have had experience with five cases of syphilis of the stomach and in every case the amount of potassium iodid tolerated was very small. The results of treatment were very satisfactory in four of the patients in spite of the small doses of the iodid. In only two of the five patients was mercury used during the period of improvement, so it seems reasonable to assume that in syphilis of the stomach small doses of potassium iodid are successful. I mention this fact because one might be discouraged in the treatment of a case of suspected syphilitic ulcer of the stomach if the patient showed an intolerance of potassium iodid in moderate doses. If in the case of severe pyloric obstruction above mentioned the patient had been given his potassium iodid in the usual way of increasing the dose by one drop daily, the intolerance of the iodid would have manifested itself very early in the treatment and the idea of the lesion being syphilitic would have been abandoned. The possibility of an ulcer being syphilitic should always be very carefully eliminated before the usual treatment for peptic ulcer is employed. This is particularly true in

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married women, because they rarely give a history of syphilis. If the infection has been imparted by a conception there may be nothing but the therapeutic test to show the character of the ulcer. This can be accomplished with such small doses of potassium iodid, and within so short a time, that there can never be any good excuse for neglecting the possibility of syphilis. The importance of this measure has been strongly impressed on me by my own experience and by the unfortunate experience of a surgical colleague who performed a pylorectomy with a fatal result; in this case the histological examination revealed the syphilitic character of the disease. The operation could have been avoided and the patient's life saved had the possibility of syphilis been seriously considered.

Given a case of chronic or acute peptic ulcer, what shall be the method of procedure in our therapy? I think we can best arrive at our goal by considering the several symptoms of ulcer.

Hemorrhage is rarely fatal in gastric ulcer. I have never seen a fatal hemorrhage from a simple round ulcer of the stomach. The only fatal case of hematemesis from ulcer which I have seen occurred very early in my experience as a hospital physician and this case proved at autopsy to be one of multiple ulcers situated in the fundus and pylorus; the pathologist made a diagnosis of multiple syphilitic ulcer. Gelatin, in tablespoonful doses, of a 5% sterile solution, every two hours, is recommended and I have used it. How much service it renders seems doubtful. The bleeding is not due to a lack of fibrin-ferment in the blood. If hemorrhage persistently recurs it must be due to the destructive progress of the ulcer. How the styptic property of gelatin can prevent bleeding from a progressing ulcer seems difficult to understand.

Adrenalin is a rational drug to employ. If its styptic property is applied to the ulcer it will certainly be of more service than gelatin and it has the additional property of diminishing the secretion of gastric juice. Another very serviceable feature of adrenalin is the property it has of lessening the muscular activity of the stomach and esophagus.

So far as physiological experiments go, adrenalin should be the most efficient remedy we can employ. Inhibition of the muscular and glandular activity of the stomach and contraction of the arterioles certainly offer all that could be wished for in the treatment of a bleeding gastric ulcer. The dosage is one-half to one oz. drachm of a 1:1000 solution in 2 oz. of water. The use of

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ice pills certainly has none of these properties. The muscular activity and glandular secretion persist in a fasting stomach and thus offer very serious obstacles to procuring the quiet which is desirable for a bleeding ulcer.

Should the bleeding be severe an ice bag on the stomach is commonly applied. Why this should be done is not perfectly clear. The application of cold over the epigastrium is one of the means we employ to excite gastric peristalsis, as a means of determining the size of the stomach in making a clinical examination. If a stomach is dilated or prolapsed and we wish to accurately define its outline we pour ether over the epigastrium or stroke the region with a cloth wet in ice water. I know of no evidence that the application of cold will allay gastric peristalsis and there is an abundance of daily clinical experience which shows that cold applied to the epigastrium has decidedly the opposite effect. If the patient is very much agitated a hypodermic injection of morphin may be employed, but it is advisable to learn about the patient's tolerance of morphin before using it. In many persons the sedative effects of morphin are followed by nausea and vomiting of a large amount of thin green liquid. This is of course undesirable, but if there is a history of the drug being well tolerated it will render good service by producing rest for the patient.

When the bleeding is severe all solids and liquids should be withheld, and water given by enemata to allay thirst.

Pain: What can be done for the alleviation of pain? The only drug I have employed for local anesthesia is orthoform given in seven grain doses, three or four times daily when the stomach is empty. Orthoform can be of service only when the point of irritation which causes pain is accessible from the inner surface of the stomach. The pain which originates from perigastritis, perigastric adhesions and spasm of the stomach wall are, of course, unaffected by orthoform.

When a protective coating to the surface of the ulcer is desired for the alleviation of pain, bismuth subnitrate or bismuth carbonate, in amounts of 30 to 60 grs. suspended in a sufficient amount of water to make a fairly thick mixture, can be given. The patient is directed to occupy either the prone or dorsal position so that the bismuth will be applied to the surface of the ulcer. There is a disadvantage in employing bismuth preparations on account of the dark color it gives the stool, which may thus cause some difficulty in recognizing the presence of blood. A cheaper

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preparation, and one which does not color the stool, is equal parts of prepared chalk and talcum, one half to a full teaspoonful is given in about three ounces of water before taking food; when the pain is intense opiates are, of course, administered. Hot applications in the form of turpentine stupes serve to arrest the pain, to keep the patient quiet in one position and probably to retard the muscular activity of the stomach, according to Penzoldt.[3]

Fleischer[4] found in healthy persons that the application of heat also shortened the requisite period for emptying the stomach. If heat allays muscular spasm and facilitates the emptying of the stomach, then there are good reasons for preferring heat to cold as an external application.

The retention of chyme, hyperchlorhydria and gastrosuccorrhea may be the chief source of pain in gastric ulcer. Indeed this may be the case when there is a bleeding ulcer and yet the ulcer may not be directly the source of any discomfort. If the precaution is taken to relieve these disturbances in the motor and secretory functions of the stomach, a patient can be made quite comfortable, provided there is no perigastritis. When the ulcer is in a progressive phase (and consequently causing repeated hemorrhages), the stasis of chyme and gastrosuccorrhea are likely to be most pronounced. On account of the bleeding and danger from perforation, great caution is advised in the use of the stomach tube. I cannot understand why there should be such danger from the tube under these conditions. Stasis of chyme and gastrosuccorrhea are the only indications for employing a stomach trosuccorrhea are the only indications for employing a stomach tube in gastric ulcer, and the muscular spasm caused by these two complications is more likely to cause a perforation than the moderate struggle which accompanies the passage of a tube.

So far as my own experience goes in this matter, I feel quite certain that in several patients with much pain and repeated hemorrhages, the greatest service rendered them consisted in daily lavage of the stomach. Every evening at 9 o'clock from one to two pints of highly acid stomach-contents were removed so the patients were insured a good night's rest. Without lavage the patients had sleepless nights and much pain.

The treatment of hyperchlorhydria and gastrosuccorrhea is rather disappointing when the ulcer is in an active state. Alkalies before and after meals and belladonna in large doses do not suffice to arrest the symptoms, although in the latent periods the

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usual treatment of hyperchlorhydria is much more efficient.

The relation between gastric ulcer and hyperchlorhydria with stasis of chyme is not at all clear. We think of gastric ulcer being the result of two factors, viz., a regional lowering of the cellular resistance, due possibly to a local infection, and hyperchlorhydria.

A problem lacking solution at the present time is the interdependence of hyperchlorhydria, gastric ulcer and stasis of chyme. The causal relation among these three factors has great importance both from the standpoint of pathogenesis and therapy.

If stasis of chyme is responsible for hyperchlorhydria and gastrosuccorrhea, then an operative procedure which cures retention of chyme would be a very simple method of arresting a factor which causes most of the trouble the patient suffers, and at the same time a complication would be disposed of which perpetuates the ulcer. An experience in Pawlof's laboratory has a great deal of significance in this relation.

One of the dogs (in which a smaller stomach from the fundus was made), developed an ulcer in the smaller stomach. After the ulcer was formed gastric juice was secreted in three times the amount which was secreted prior to the ulcer formation. In this case spasm of the pylorus, and the presence of food can be eliminated. The only remaining cause which could be responsible for gastrosuccorrhea was the presence of the ulcer.

It looks as though an ulcer excites the receptors of certain afferent nerve paths which are responsible for a reflex excitation of the peptic glands. Gastrosuccorrhea and high acidity will account for the refusal of the pylorus to allow the passage of chyme into the duodenum.

Admitting this to be the sequence in which these factors originate, we must be reserved in accepting gastro-enterostomy as a clear solution of the whole problem. That gastro-enterostomy does give great relief I readily admit. When retention of chyme is associated with a high degree of acidity, gastro-enterostomy may be followed by complete relief of the stomach symptoms but what followed in two cases in my own experience was a perforating ulcer in the jejunum at the site of operation. Two such experiences have led me to believe that high acidity and an excess of gastric juice in cases of ulcer are the very conditions which demand conservative treatment. I would more readily advise an operation when the acidity is moderate than when it is high.

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The third class of cases to which I referred constitute a fair percentage of ulcer cases, and offer great difficulties in differential diagnosis. I mean the patients whom Stiller calls congenital asthenics. These patients are characterized by a floating tenth rib, gastric atony and varying degrees of acidity of chyme. They also give a long history of acid dyspepsia. In such cases the gastric ulcer is merely an incident in the pathological history of the patient and one must not be led into the error of estimating the gastric atony and gastrectasis as the result of an ulcer. The atony and gastrectasis persist in such patients after the ulcer is healed. So does the stasis of chyme persist after healing of the ulcer.

Although I have not seen any such patients operated upon for ulcer, I have seen three operated upon for retention of chyme. In two of the patients the operation gave no relief and in the third the result was very doubtful. Why gastro-enterostomy gives none of the expected relief, I am unable to explain, but the fact was amply proved in two of these patients by the use of the stomach tube, before and after operation. When ulcer does occur in such a patient, great care should be exercised in relieving stasis by the stomach pump and also in treating the hyperchlorhydria by diet and drugs. After these measures have been carefully employed without relief, an operation may be undertaken. The misleading factors in these cases are the atony, gastrectasis and hyperchlorhydria. They may all occur without ulcer and will persist after an ulcer is healed.

The mere fact that a patient has a gastric ulcer with hyperacidity and stasis of chyme are not sufficient to justify an operative procedure. The history of the patient must be carefully considered. If the patient has the stigmata of congenital asthenia and gives a history of dyspepsia existing long before the signs of ulcer developed, then we have not the same expectation of relief from gastro-enterostomy which can be reasonably had in a patient who is free from the stigmata of congenital asthenia and in whom the history indicates that the gastric ulcer and digestive disturbances began at about the same period.

In cases in which ulcer is accompanied by pain, vomiting and stasis of chyme with active peristalsis, few physicians will hesitate to advise an operative procedure, but great care must be taken not to interpret the stasis and hyperacidity and gastrectasis of a congenital asthenic, as being caused by a pyloric ulcer only.

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If the pyloric ulcer is not the cause of this train of symptoms, but is merely incidental in the patient's pathological history, then gastro-enterostomy will not afford the relief we may otherwise expect.

During the past few years several celebrated surgeons have sought to invert the old numerical proportion of gastric ulcer to duodenal ulcer, viz., of ten to one. This old proportion has been established by careful observations in enormous numbers of autopsies and clinical experiences, and the pathological and clinical experiences have been consistent. For the peptic ulcer of the stomach and duodenum are sufficiently chronic to leave some traces of their site when healing finally occurs.

The duodenal ulcers, which these surgeons claim to find so frequently, are chloropeptic ulcers as well as the gastric ulcers. We must exercise great caution in adopting these revolutionary conclusions. Their experiences have not contributed anything new to the clinical differentiation between gastric and duodenal ulcer. The interim of comfort after taking food in duodenal ulcer (a point which is so strongly emphasized), was known long before this inversion of the proportion was attempted. The only evidence on which this new proportion is based is obtained by inspection of the peritoneal surface of the duodenum. Now if all these duodenal ulcers have gone so far as to show clear evidences of their position by invasion of the peritoneum they certainly would leave some traces after healing, and both old and recent pathological studies clearly contradict the new proportion these gentlemen propose.

I have had no opportunities to inspect the duodenum of the living when ulcer was present, but I have had some experience in trying to locate the site of ulcers in the intestine during post-mortem examinations on typhoid fever subjects and I know one is often misled in locating an ulcer where none exist, and the observer will often fail to locate an ulcer which is present. Before this new proportion can be adopted we must require much more evidence than has thus far been offered.

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Precision in the Treatment of Whooping Cough.

By E. F. CUSHING, M. D., Cleveland.

In the treatment of whooping-cough, the physician, even when dealing with the more intelligent classes of the community, has often to reckon with a parental view, that the disease is inevitable in childhood, that its course and severity are but little influenced by treatment, and that the malady, though tedious and sometimes distressing, is not one of special gravity, and, as a corollary, that medical oversight is of little or no value. The complacent mother with the whooping child whom one meets so often in street or car or shop, represents in her casual indifference to the welfare of others the popular conception of the insignificance of the disease. This lay ignorance and carelessness owes its existence, of course, to a professional attitude of the past when the want of an infallible drug-cure seemed to limit the possibilities of therapy; and is perhaps in some measure, even at the present day, fostered by a lack of precision and thoroughness in medical treatment. An unusual exactness in the management of every case of whooping-cough is therefore incumbent on the physician since, in considering the welfare of both the individual patient and the community, he must often take especial pains to obtain a parental understanding of the frequent mortality and serious consequences of the disease and to secure cooperation in his measures of care and precaution. It is my experience, however, that the need for precision and watchfulness in the treatment of even the mildest cases is readily understood and accepted, and that the especial details necessary will be carried out with accuracy and attention by the average mother, provided that the physician, himself, is as painstaking in his explanations, his directions and supervision, as he would be if dealing with a case of typhoid or scarlet fever.

The possibility today, of making reasonably sure of the existence of whooping-cough in its catarrhal stage from the blood-findings is of the greatest help to the physician in his endeavor to properly care for and control his patient, since the opportunity thus easily given for the prompt recognition of the disease, in perhaps its most contagious period, enables him to take steps to accomplish isolation and begin treatment early; while, to

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settle the question of diagnosis at once and with precision, secures at the outset a maternal confidence and assistance in his further procedures. To have to wait for the distinctive "whoop" made the grandmother as prompt a diagnostitian as the doctor; and the delay in determining, or reluctance to acknowledge, that what had seemed a simple cold was in reality pertussis led, in the absence of definite means of early recognition, to public and professional laxity and careless exposure of others. As soon as the cough of pertussis begins, a leukocytosis is found, at first with increase of all the cell forms but shortly with a great preponderance of the small mononuclears. While this lymphocytosis is usually more marked in and reaches its height in the paroxysmal stage of the disease, when the percentage of lymphocytes is often double that of the polymorphonuclears, in most cases it is already conspicuous in the blood-picture in the catarrhal stage when the patient first comes under observation, and if the characteristic lymphocytosis has not appeared, the general leukocytosis, always present, itself, is almost sufficient to distinguish the malady from the simple tracheitis or influenza or other affection which it may simulate. All who have studied the morphology of the blood in pertussis since Frölich in 1897 first called attention to this lymphocytosis agree as to the value and reliability of this aid to diagnosis. The leukocytosis of pertussis seems as invariable as the leukopenia of typhoid fever and as helpful in early diagnosis as is the presence of Koplik's spots in measles. So far as my own experience is concerned, I have found that when a first blood-count shows only an increase in both poly- and mono-nuclear cells a second examination after the lapse of a few days discloses a lymphocytosis, while ordinarily the first smear made, whatever the stage of the disease, is sufficient to solve the problem of diagnosis. It would seem as if it were as much the present-day duty of the physician to examine the blood in every instance of cough occurring in childhood, the etiology of which was in the least doubtful, as to make a culture from every membranous sore throat. As yet, however, an appeal to the blood does not seem common in practise. The last child with whooping-cough seen, for example, had for a week been daily to the office of a throat specialist for the local treatment of a "tracheitis." That the cough was due to pertussis a blood-count would at once have demonstrated.

The question of diagnosis answered, it becomes the duty of the physician to make clear the possible gravity of the disease, its

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infectious nature, its long duration and the ways in which its contagion is spread. He must explain the precautions necessary to prevent the exposure of others in and out of the household, and must elucidate the details of treatment, hygienic and otherwise, making it obvious that exposure to the open air, careful feeding, and control of the child's activities are more important factors in therapy than the drugs employed, however useful the latter. The modern tuberculosis campaign of education has made it easy for the public to accept that the methods of treatment so valuable in consumption are applicable to another coughing disease, and that wide-open windows and life out-of-doors are as important in one as the other.

At the outset of treatment I have found it well to require that for a week or so the whooping-cough patient be kept in bed. Indeed in the catarrhal stage there is often, perhaps always, some fever, notwithstanding the statement in many textbooks to the contrary, which is of itself a sufficient indication for bed; and the almost incessant cough so often found in the first fortnight of a pertussis is, as a rule, at once lessened in frequency and severity when the child is taken off its feet, provided that the windows of its room are kept open wide. Even when the patient is first seen in the paroxysmal stage of the disease, the brief stay in bed is eminently useful, for the control thus secured enables one to initiate his measures of isolation and treatment under the most favorable auspices. In the presence of complications of any sort or when the disease itself is of severe type, the paroxysms frequent, and vomiting troublesome, confinement to bed is, of course, indispensible at any period of the illness. A daily use of the clinical thermometer is, I think, desirable throughout the attack. It is my habit to explain to mothers that bronchitis and pneumonia, the commonest complications of whooping-cough, are always accompanied by fever, which does not belong to the disease itself after the catarrhal stage is past, and to require therefore that the child's temperature should be taken each day at evening. Should this be more than 100° F., the patient is to be kept in bed and the physician notified.

The details of the fresh air treatment must be carefully considered. At night every window in the child's bed-room should be kept wide open. Even in ordinary winter conditions this is entirely possible, though the problem of cold, fresh air for inhalation, without undue chilling of the room, may be solved by the

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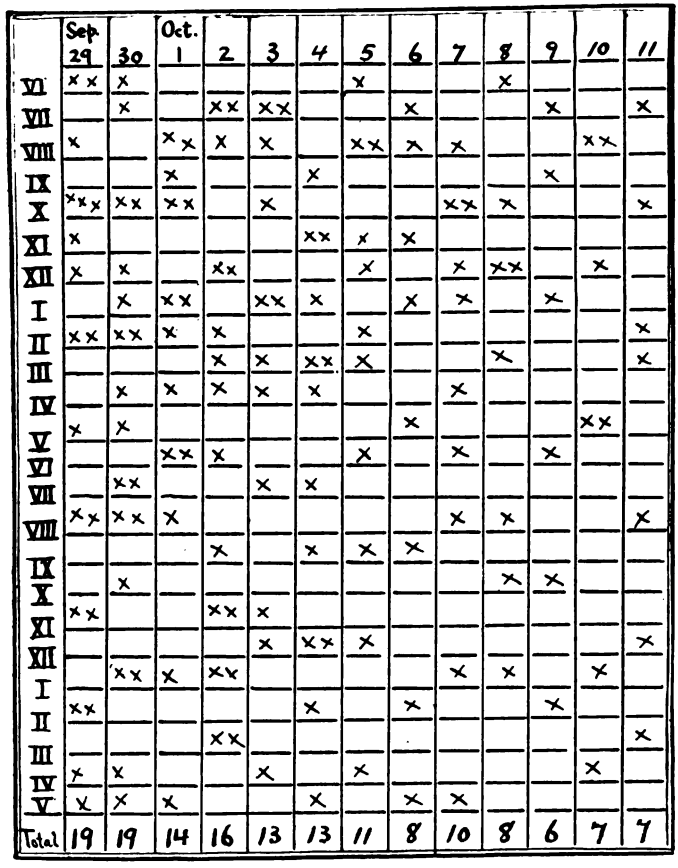
use of the window-tent which has proved so useful in tuberculosis. Indeed the cold, fresh air of a winter night is far the most efficient nocturnal sedative for the cough of pertussis that I am familiar with. That the paroxysms of whooping-cough usually occur more often at night than during the day, as described in the books, is entirely due to vitiated air in the sleeping room. It is an artificial and not an essential feature of the malady. During the daytime the patient should be indoors as much as possible. If the child is in bed, a couch or hammock on a porch solves the out-of-doors problem. Nowadays one is lucky enough sometimes, to find an outdoor sleeping porch available for day and night use; and this new feature of the modern house of the well-to-do, built as a luxury, should receive the warm encouragement of every physician. It may easily help to save the life of the owner's child in a whooping-cough or his own in a pneumonia. When the patient is about, he should be confined, in his outing and play, to the limits of his own yard which practically every household in this fortunate community possesses; and if there are other children in the family the same isolation should be insisted on for them. Drives in an open carriage in good weather are helpful and desirable, but automobile rides should be forbidden, except perhaps in the slower electric vehicles, for the exposure to dust and rapid air currents tends to excite cough and aggravate the condition. Running, or romping, or too vigorous play of any sort, should be avoided as likely to provoke paroxysms, and this involves constant oversight. Loud laughter or screaming, in the same way as too active exertion, brings on cough and should be guarded against as far as possible, and a nursery discipline which may lead to tears has often to be judiciously relaxed, for every paroxysm saved is an advantage and even the seemingly trivial exciting causes should be considered. In bad weather when confinement to the house is necessary the child's life should be lived, whether at play or lessons, in rooms with wide open windows, outdoor clothing being worn if necessary. When dealing with infants, with whooping-cough, to keep them in the open air day and night is distinctly a life-saving undertaking. Part of a porch may be screened and the baby and its nurse sleep there at night and live there during the day. A new-born baby who began with its cough at the age of two weeks spent the next two months of its life on such a screened porch, being taken into the house only

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for its daily bath, and gained steadily in weight during the period.

To keep an accurate count of the number of cough paroxysms occurring during each 24 hours is a very helpful procedure, as it gives aid in estimating the severity of the attack and furnishes evidence of the effect of the treatment employed. Some form of record, simply and easily kept, should therefore be required of the mother. For some years I have used with great satisfaction for this purpose a chart quickly ruled, with a space for each hour of the day and night, giving instructions to mark with an X each coughing fit in its appropriate place, and at the bottom of each column to note the daily total. An ordinary temperature chart supplies a ready-made form for this use.

Mary K.



	Sep. 29	30	Oct. 1	2	3	4	5	6	7	8	9	10	11
VI	××	×					×			×			
VII		×		××	××			×			×		×
VIII	×		××	×	×		××	×	×			××	
IX			×			×					×		
X	×××	××	××		×				××	×			×
XI	×					××	×	×					
XII	×	×		××			×		×	××		×	
I		×	××		××	×		×	×		×		
II	××	××	×	×			×						×
III				×	×	××	×			×			×
IV		×	×	×	×	×			×				
V	×	×						×				××	
VI			××	×			×		×		×		
VII		××			×	×							
VIII	××	××	×						×	×			×
IX				×		×	×	×					
X		×								×	×		
XI	××			××	×								
XII					×	××	×						×
I		××	×	××					×	×		×	
II	××					×		×			×		
III				××									×
IV	×	×			×		×					×	
V	×	×	×			×		×	×				
Total	19	19	14	16	13	13	11	8	10	8	6	7	7

Whooping-Cough Chart.

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The suggestion of the value of such a record was found in Trousseau's "Clinical Medicine," where he states that it was his habit to ask mothers to prick with a pin a hole in a card whenever an attack took place, so that he might next day see how many paroxysms had occurred. Indeed for an account of pertussis as graphic in symptomatology and as suggestive in its discussion of treatment as that of the French master one would have to search long today. It is interesting to note that a present-day French clinician, Prof. Tissier, has recently emphasized the usefulness of such a carefully kept whooping-cough chart as more valuable than the temperature chart in a febrile disease. Elsewhere, I have seen no suggestion of the helpfulness of a chart of this sort, nor encountered one in practise, though doubtless many physicians employ some such means of record. Inspection of the chart at the physician's visits gives him at once an accurate report of the progress of the patient and enables him to draw inferences as to the usefulness or otherwise of his drug treatment. Not infrequently the daily occurrence of fits of cough at the same hour draws attention to the repetition of some accidental and controllable cause of paroxysms as, for instance, a father's romp with the child on his return from business, or that the heartiest meal of the day is always followed by cough and vomiting. Perhaps the greatest value of the chart, however, is that it means to the mother precision in the treatment her child is receiving and secures on her part an answering watchfulness and care. To this end also, the physician's visits, throughout the course of the illness, even when their need is infrequent, should be always made on a definite day and at the expected hour; and carefully written directions covering all details of treatment should be left with the mother at each visit.

The vomiting, which is such a common phenomenon in whooping-cough, and often so serious a one, may require the most thoughtful planning for its control. The child's meals, even when it is about, and the attack is a mild one, should not be taken at the family table, but eaten in the nursery, to secure quiet, slowness of eating, and an easy control of quantity, for overeating almost invariably provokes a convulsion of cough which brings up all the food taken. For quite another reason, too, the child should be kept from the table and from all other unnecessary contact with the adults of the household, and that is, the risk of contagion to the latter if brought in

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close range of the cough explosions. Second attacks of whooping-cough in adult life are far from rare and old people seem especially susceptible and should be carefully guarded. It is not at all uncommon to have the mother or nurse, who cares for the child, herself develop the disease. To get behind the patient when he is coughing so as not to be bespattered with mucus is a wise precaution. To return to the vomiting problem and the measures planned to combat it, it is wise to have the patient lie down for an hour after eating, in the open air if possible, while he may be read to, to keep him quiet To have the meals out-of-doors is often of good service. If, in spite of such precautions, vomiting takes place soon after the food has been eaten, it is often possible to repeat the nourishment almost as soon as the paroxysm is over, and this time have it retained. Frequent small meals, instead of fewer and larger ones are sometimes helpful, and solid foods are often less easily lost than liquids. When vomiting is troublesome, a very useful resource in treatment is Kilmer's abdominal belt. This is a band of linen, four to five inches wide, and three inches less in length than the circumference of the child's abdomen at the navel, with two strips of elastic webbing, each two inches wide, let in at each side, the whole belt lacing in the back. This Kilmer belt is not uncomfortable and should be worn night and day. There seems no question that its use tends to lessen vomiting appreciably.

With an effort resembling an act of vomiting the whoop of the pertussis paroxysm is usually followed by the expulsion of mucus, often in surprisingly large quantities. This seems to be actually squeezed from the chest by its contraction during the period of glottis closure; and even young infants show expectoration of this sort, if it may be called expectoration. This mucus so expelled is probably highly contagious and should be disinfected as far as possible. Ordinarily it spatters the child's person and surroundings. The patient, if old enough, should be taught when he feels the fit impending, to turn and hold his head over a basin containing some antiseptic fluid which should always be at hand for the purpose.

Of the innumerable drugs in the whooping-cough armamentarium, belladonna and antipyrin, and for a sedative, heroin or opium, in the form of paregoric or Dover's powder, have served me best. I am accustomed to commence treatment with a belladonna dose after each meal and heroin at bedtime. The bella-

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donna is given in the way Jacobi has so often advised, that is, beginning with a drop, or even a half-drop, of the tincture, to anticipate a possible idiosyncrasy on the part of the patient; the dose is increased one drop each day, until a point is reached where within an hour from the time the medicine is taken a distinct flushing of the cheeks occurs. In the child this erythema develops as a rule before an uncomfortable dilatation of the pupils results; and when the dose is found which occasions it, a distinct lessening in the intensity and number of the paroxysms is ordinarily apparent. Short of this effect, belladonna seems to me without influence on the disease but when the flushed cheeks show themselves, betterment is the rule. Six or eight drops of the tincture of belladonna are usually sufficient to produce the desired effect in a child of from six to eight years, and this dose should then be continued for a long period. When sufficiently diluted there is no taste or odor and the medicine is therefore readily taken. The child's mother, on the look out for the reddened cheeks, watches carefully the effects of the drug, and if the whooping-cough chart shows a daily reduction of five or six in the cough total both she and the doctor are content with the result. If, on the other hand, no effect on the frequency of the coughing fits is apparent the belladonna is omitted, and antipyrin administered in its stead, in a dose of one grain for each year of the child's age, in solution, and given three times a day after meals. At bedtime an appropriate dose of heroin or paregoric or Dover's powder needs ordinarily to be administered. Children as a rule at once fall asleep when the paroxysm which awakens them is over, but the mother's or nurse's night is often seriously broken thereby, and for the attendant's sake as well as the patient's, night paroxysms should be controlled as far as possible.

As for other means of medicinal treatment, many are useful, none are specific; but the sprays, the vaporizations, the direct medications of the larynx and trachea, the inhalation of oxygen, or the administration of the last new drug, like the fluoroform recently extolled by Tissier, while they add to the possibilities of benefit possessed by the physician and may play a useful part in a well-conceived plan of therapy, are each and all, I am sure, of less importance than the air of out-of-doors; but whatever form of treatment is undertaken, it should be carried out with the precise attention to detail which the gravity of the disease demands.

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of Medicine of Cleveland, October 1, 1909.

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Clinical and Experimental Observations in a Case of Prolonged Infantile Tetany

By H. J. GERSTENBERGER, M. D., Cleveland
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The marked tetany that follows thyroidectomy in man, the dog, cat and rat, is now universally accepted to be due to the complete removal of the parathyroid bodies, because it has been demonstrated that, firstly, the complete excision of the parathyroids is followed within a few hours by a marked tetany (Hagenbach,[1] Pfeifer and Mayer,[2] MacCallum and Voegtlin[3]), and that secondly, this postoperative tetany can be made to disappear by subcutaneous injections of an emulsion of ox parathyroid bodies or of a nucleoproteid derived from them (Berkely and Beebe[4]); MacCallum and Voegtlin found further that there was a decided increase in the excretion of calcium in the urine and feces during the postoperative tetany of dogs, and that soluble calcium salts given by mouth, subcutaneously or intravenously would, if administered in large enough amounts, cause a complete cessation of the symptoms.

There is, however, no such uniformity of opinion as to the etiology of the so-called idiopathic forms of tetany, especially as to that of infantile tetany. Pineles,[5] Escherich[6] and their following believe that all tetanies are due to an insufficiency of the parathyroid bodies. Pineles found that the symptoms of infantile tetany, of idiopathic tetany of adults, of parathyroid tetany of man and of parathyroid tetany of dogs and other animals were practically the same. Although Escherich admits that it is still nothing more than a hypothesis, he is, nevertheless, of the same opinion and feels himself much encouraged by the findings of Yanase,[7] one of his pupils, who examined some 80 to 90 cases in children under three years, who had shown at the time of their death, or shortly before, a hyperexcitability to the galvanic current. In 61% of those showing kathodic, and in 54% of those showing anodic hyperexcitability he found hemorrhages in the parathyroids, due, he believes, to birth traumata, because the severest lesions were found in the youngest children. The remaining negative cases were all over one year of age, at which time, however, all signs of hemorrhage, except for small deposits

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of pigment, have been found to be absent. Thiemich,[8] contrary to Yanase, failed to find pathological lesions in the parathyroids of the three cases of spasmodic diathesis. Yanase's findings, therefore, need further investigation by impartial observers.

As a possible explanation for the rather strange fact that infantile tetany very rarely occurs before the third month, and generally not until the sixth month, which fact makes the etiologic role played by the hemorrhages, which are, according to Yanase, most marked at birth, at least seem doubtful, Escherich offers as an explanation the normally lessened excitability of the nervous system during the first few months of life, the possible large residue of maternal antibodies, and the possible physiological peculiarities of the nervous system or of the entire body. From the presence of the hemorrhage, however, he feels justified in concluding that parathyroid insufficiency exists since birth, and for some reason or other it has been prevented from becoming clinically recognizable before about the third to sixth month.

Opposed to Escherich and his followers are many internists, pediatrists, and others, who still doubt that all cases are due to an insufficience of the parathyroids. Among these we find Basch,[9] who recently found that the excision of the thymus of young dogs was followed by a hyperexcitability which started gradually and slowly grew worse, resembling very much the latent stage of infantile tetany. Much of this doubt is due to the fact that in infantile tetany the specific therapy of feeding parathyroid bodies has failed utterly. We now know, however, that this is also the case in the postoperative form and, therefore, the inability to get results in the cases of infantile tetany by such treatment is not necessarily a proof that the parathyroid bodies have nothing to do with the presence of tetany in such a case.

It would seem that the carrying out of the treatment which we now know to be of positive value in the postoperative forms of tetany, namely the subcutaneous injection of the parathyroid extract and of the soluble calcium salts, and also of the carrying out of metabolism experiments, especially as to the increased or lessened excretion of calcium as suggested by MacCallum and Voegtlin, would be of aid in determining the percentage of infantile tetany due to insufficiency of the parathyroid. The calcium balance of this case was carried out under the direction of Dr H. D. Haskins, of Western Reserve University, and will later be published by him.

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The difficulty, however, lies in the fact that the severe forms of infantile tetany with marked carpopedal spasm, are in most cases of very short duration and intermittent in character, so that the improved condition cannot be unqualifiedly accepted as due to the treatment instituted. This is also true in drawing conclusions from metabolism experiments of short duration.

For these reasons the very rare, prolonged and continued cases of marked infantile tetany are of a special importance, as they permit observations for a relatively long time, thereby increasing their value.

Such a case came to the Babies' Dispensary and Hospital on December 19, 1908.

Family history: S. B., 14 months old, colored, of feminine sex, is a child of healthy but poor parents, living in poor quarters. Her brother is markedly rachitic.

Personal history: The patient was breast-fed about every three hours, until six months old; during the following two months, besides the breast, she received meat, rice, gravy, bread, etc. At this time, at the age of eight months, she was admitted to the Babies' Dispensary and Hospital for the first time, with a diagnosis of dyspepsia and slight rachitis. The mother was ordered to nurse the baby five times and return, which she did. At the second visit the same order was given. The child was weaned at nine months.

Present illness: December 19, 1908. Mother has noticed stiffness and queer position of fingers for one month. She has also given goose-oil for "croup," which the child had also for the same length of time. As to the feeding of the patient, the mother states that during the past three months the patient received very little cow's milk, and subsisted mainly on weak tea, bread, crackers, potatoes, oatmeal, tomatoes and soups. For one week no milk was taken by the child. No meat or eggs were given. The bowels moved one to three times daily, and the stools were unusually soft and yellow; occasionally, however, hard. No vomiting was noticed.

Physical examination: Child's hands and feet show marked carpopedal spasm. The facial phenomenon is very marked, as is also the laryngospasm. The electrical examination gave a K. O. C. with 0.5 milleamperes.

Treatment: Castor-oil, one and one-half teaspoons was given. All solid food was stopped, oatmeal water only being given until morning, then 500 c.c. milk and 500 c.c. water, in five feedings.

From the fact that the child had received no milk for the last week and but very little for the last three months, it was considered possible that the condition was due to the one-sided carbohydrate and vegetable diet, as in the cases of tetany described by Czerny which occurred in the course of "Mehlnaerschaden." Therefore the child was put upon a half milk and half water diet. On the fourth day no improvement was noticed, and it was decided to give her calcium lactate, gr. 2 t.i.d. The diet was the same. Three days of this treatment also brought no change. On December 27, desiccated ox parathyroid gr. VII s.s. t.i.d., were given in place of calcium. Five days of this treatment also showed no change. During this entire time the diet was changed only for 24 hours, namely, on December 26, when the child was given 900 c. c. of 2½% oatmeal water. The intention was to continue this diet for four to five days to see whether it would bring about the disappearance of the symptoms. This plan, however, was immediately changed; because it so happened that the writer was enabled to get some freshly prepared desiccated parathyroids from a dependable source. Therefore the child was immediately returned to 450

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c. c. milk and 450 c. c. water, divided into five feedings. From January 4 to January 27 the electrical apparatus was out of order, consequently no determinations with the galvanic current could be made. The facial phenomenon, the laryngospasm and the carpopedal spasm, however, were noted daily and remained unchanged. The slightest touch of the tip of the finger to the side of the face would produce a very marked contraction of all the muscles supplied by the facial and its branches. The laryngospasm was also extremely marked, and of the inspiratory type. There was marked plantar flexion of the toes, marked adduction of the thumbs with flexion of the proximal, and extension of the distal, phalanges of the fingers.

The further feeding and treatment of the child and their relative effects upon the symptoms can be determined by referring to the accompanying chart.

All ox parathyroid bodies were obtained freshly and in a sterile manner on the morning of the day of the injection. The parathyroid with the surrounding tissue was dissected out of the ox immediately after killing. The mass was dropped into sterile salt solution and taken to the hospital where the parathyroid body was carefully dissected out with sterile instruments. It was then finely snipped with the scissors and macerated in the water with sterile salt solution. This process consumed approximately 40 minutes; at the end of which time a milky liquid had been obtained. This, with the exception of a very small amount of remaining connective tissue, was injected in the abdominal subcutaneous tissue, through a wide-mouthed needle. Although the area of injection was sensitive for a number of days afterwards, there was no sign of an infection noticed.

The rise in temperature that followed the injection of calcium lactate on March 1, was in all probability a symptom of the "Serumkrankheit," as a marked urticaria appeared at the same time, 1,000 units of antitoxin having been administered prophylactically on February 26. It is, however, possible that the rise in temperature was a "salt fever" in the sense of Schaps.[10] This also seems probable, as the later injection of calcium lactate on April 15, was also followed by a rise in temperature.

The phosphorated cod-liver oil used consisted of 1 c.c. of a 1% solution of phosphorated oil and 99 c.c. of cod-liver oil.

CONCLUSIONS.

1. That in this given case of persistent, severe, infantile tetany, which resembled closely the form of tetany observed after total removal of the parathyroid bodies, no improvement was noticeable from the subcutaneous injection of an aqueous extract of ox parathyroid.

2. That, therefore, this case cannot be considered as one

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due to an insufficiency of the parathyroid glands.

3. That this finding rather indicates that there are other causes for at least some of the cases of infantile tetany.

4. That the negative result following the subcutaneous injection of soluble calcium salts also speaks against any etiologic role of the parathyroid glands in this given case.

5. That the failure of the subcutaneous injection of calcium lactate to increase the excitability to the galvanic current argues against the theory of Stoeltzner that tetany is due to a calcium poisoning.

6. That the administration of cow's milk had a definite bearing on the severity of the symptoms, and that there was, in all probability, some causative relation of the season of the year in the improvement of the child.

7. That the clinical symptoms ran hand in hand with the hyperexcitability as graduated by the galvanic current.

8. That the anodic hyperexcitability was not present in this case.

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Achondroplasia, Report of a Case with Pathological Report

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Achondroplasia was first scientifically described by von Sömmering, who in 1792 published the pathological report of a case of fetal abnormality, although he attempted no classification. The early knowledge of this disease was increased by the work

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of Romberg (1817), Weber (1829), Busch (1836), Virchow (1852), Müller (1860), Urtel (1873), and Eberth (1879). Parrot, who first proposed the name achondroplasia, in 1878, recognized the condition as an independent disease. The earlier observations were made chiefly by pathologists and obstetricians, since most of the cases are those of still-born infants. Since Marie's report in 1900 of the disease in adults, the condition has become much more widely recognized clinically and recent medical literature records many cases.

In America, Nathan[1] (New York City) remarks that in three years he had the opportunity of examining eight cases and that he had observed several others on the street. Miller[2] (Philadelphia) reported one case and was cognizant of four others encountered upon the streets. West and Petit[3] (Ohio) record a case and speak of knowing of four others in the vicinity. I have myself during a little over a year's residence in Cleveland seen four cases, one of which has been reported by S. L. Bernstein[4] in this Journal.

The following case is reported as a typical example of achondroplasia and is of especial interest due to the definite pathological findings.

T. M., male, Kreiner, aet. 3 months 21 days, was admitted to the Dispensary of the Babies Dispensary and Hospital of Cleveland, April 21, 1908: complaint, noisy breathing. No history of tuberculosis, lues, nor of dwarfism in the family could be obtained. The father was well and measured 187 cm. in height. The mother was well and maintained that she had always been so and that during the recent pregnancy she had felt especially well. She measured 154 cm. in height. There were two sisters aged five and two who were very healthy and one brother of three years whose legs showed extreme rachitic deformities. The hygiene of the home was very inferior.

The child was born at full term after a prolonged labor but without instruments. He had always been well and the mother was quite unaware that there was an abnormality apart from the difficulty in breathing. He was breast-fed. At six weeks he cut two lower central incisor teeth.

The child weighed 5420 gm. The abnormally formed skeleton was manifest at a glance. The vault of the skull was large, the frontal and parietal bosses prominent and the biparietal and bitemporal diameters were equal, and there was marked prognathism. The fontanel measured 2 cm. in transverse diameter. The nose was broad and flat and its root was depressed. The tongue was not enlarged nor projecting. The hair was soft and fine and the skin was not harsh nor scaly. Two lower central incisor teeth were present. The trunk appeared abnormally long and the extremities short. The chest was small, narrow and flat and beading of the ribs was manifest. The epiphyses at the wrists and ankles were slightly enlarged. The hands were short and broad with the fingers all of an equal length radiating like spokes of a wheel. The finger and wrist joints were quite lax so that the fingers and hands could be bent far back. The extension of the forearm was possible at 180°. The child was rather poorly nourished and the tissues of the extremities fitted the skeleton well. Glands were palpable in the cervical, axillary and inguinal regions. Thyroid was not palpable. No deformities were present. Geni-

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tals were normal. Nystagmus was quite constant. The child seemed bright and strong.

One week after the first admission a few pieces of adenoid tissue were removed from the nasopharynx, followed by relief from the noisy breathing.

The case was followed for a year at the dispensary and in the home. No therapy was used save at the intercurrent attacks of bronchopneumonia, of which there were two before the fatal one, and one attack of entero-catarrh. Breast feeding was maintained five times in 24 hours until the second year when one feeding of farina soup was substituted for one nursing.

At one year of age the fontanel had closed and there were eight teeth present. The child could stand while steadying himself by holding lightly to a chair and could say a few words. There was a very definite lumbar lordosis and the abdomen was prominent. No bowing of the legs was apparent. The weight had increased to 6925 gm. The measurments taken at one year of age follow:

	Centimeters
Crown to umbilicus	38
Umbilicus to soles	32
Height, standing	70
Height, sitting	46
Circumference of head	48.5
Biparietal diameter	11.25
Bitemporal diameter	11.25
Fronto-occipital diameter	16.2
Mento-occipital diameter	18.2
Suboccipito-bregmatic diameter	15
Root of nose to occiput	37
Ear to ear	26
Circumference of neck	21.5
Circumference of chest at nipples	38
Manubrium to symphysis	21.5
Length of manubrium	8
Circumference of abdomen at umbilicus	40
Upper arm	9
Lower arm and hand	17.5
Wrist to tip of middle finger	6.5
Fingers, index and little	3
Fingers, middle and ring	3.5
Anterior superior spine to knee	15
Anterior superior spine to int. malleolus	26
External malleolus to heel	3.5
Anterior superior spine to head of fibula	16
Length of foot	10
Circumference of calf	14
Greatest thickness of thigh	20
Femora	12.5
Tibiae	10.8

It is interesting to note comparative measurements taken at 12, 13, and 14 months. The distance from crown to umbilicus was 36 cm. each time while from umbilicus to soles, the measurements were 32, 33.5, and 35 cm.

At 14 months of age the child was brought to the dispensary with a rhinitis. Two weeks later, he was seen at the home and had a slight bronchitis. For two days he was fairly well and then became rapidly worse and when seen again at the home, he was moribund. When examined two days before death the liver was found extending to the umbilicus and the spleen 2 cm. below the costal margin. The bronchitis had extended to the finest bronchi and there was slight consolidation at the bases observed a few hours before death.

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The necropsy was performed 24 hours after death under quite unfavorable circumstances and, unfortunately, accurate measurements of the organs were not obtained and some specimens were lost. The following extracts are made from the report: The lungs showed emphysema along the anterior and upper parts. The bronchi were filled with pus and about them at the bases were areas of consolidation with smooth depressed areas between these areas. The heart was normal. There was an enlarged thymus but it was normal macroscopically. The thyroid was of normal size and shape. The adrenals were enlarged and rounded. Pancreas apparently normal. The liver was very much enlarged and pale. Kidney capsules stripped easily, and upon section the cortex appeared thickened and the markings blurred. Mesenteric and bronchial lymph glands enlarged. Spleen large, upon section showing very prominent Malpighian bodies. A rib taken at the costo-chondral junction showed that the enlargement was chiefly upon the inner side and was due to enlargement of the bony element, not of the cartilage.

The tissues were studied microscopically by Dr David Marine of Western Reserve University, who kindly furnished the following report.

Lung. Collapsed; alveoli contain large numbers of blood-pigment containing desquamated alveolar cells. Bronchi are everywhere filled with pus cells, desquamated epithelium, and blue-staining mucus. The lymphoid tissue about the bronchi is increased in amount, with well formed and large lymph centers surrounded by the dense zone of small lymphoid cells. Scattered throughout the section and in close relationship to the bronchi are small areas of consolidation in which the alveoli are more or less completely filled with cellular exudate. *Diagnosis:* Acute catarrhal bronchitis and bronchopneumonia.

Pancreas. The ducts, lobulations, connective tissue and gland acini are normal in appearance. Very striking, however, is the enormous proportion of the islands of Langerhans to the ordinary acini, occupying at least half the section surface. Granting that the section is from the tail of the pancreas, the proportion of islands is much greater than ordinary. The islands are in general very large but their cellular arrangement normal.

Lymph gland (retroperitoneal). Capsule thickened slightly. The lymph centers are everywhere increased in size; no increase of stroma. *Diagnosis:* Marked simple hyperplasia.

Spleen. Normal apart from the extreme hypertrophy of the Malpighian bodies. *Diagnosis:* Lymphoid hyperplasia.

Bone marrow. Very extreme proliferation of the marrow cells, particularly those of lymphoid type. The eosinophiles are also increased. *Diagnosis:* Lymphoid hyperplasia.

Bone (rib). Line of ossification extremely irregular, hyperemic. The marrow cells are closely packed together directly up to the line of ossification, and the most striking thing is the predominance of cells with eosinophilic granulations. The leukoblastic marrow tissue obscures the erythroblastic cells so that it is impossible to make out the proportions. The entire bone marrow is hyperemic. The vessels also of the bony wall and periosteum are large and distended with blood. The marrow cavity is relatively large, due to the thinness and diminution in number of the bone spicules throughout. *Diagnosis:* Rarefaction of bone; hyperplasia of leukoblastic marrow.

Liver. Portal spaces contain slight increase of fibrous tissue. The capillaries of the lobules are dilated and the columns of liver cells stand out in consequence. The cells are pale, slightly vacuolated and coarsely granular. *Diagnosis:* Extensive parenchymatous degeneration.

Kidney. Normal, apart from the apparent widening of convoluted tubules due to the extensive parenchymatous degeneration. *Diagnosis:* Parenchymatous degeneration.

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Thyroid. General increase in fibrous connective tissue making coarse lobulations. Vesicles contain no colloid. Epithelium everywhere columnar, in places completely obscuring the lumen. Very vascular. Parathyroid normal. *Diagnosis:* Marked hyperplasia with fibrosis (cretinoid).

The tissues were fixed in alcohol and formalin, imbedded in celloidin, and stained with hematoxylin and eosin.

It is customary for authors in reporting cases to remark that nothing is known of the etiology and indeed the many theories advanced would lead one to such a conclusion. It has been suggested by Poncet et Leriche[6] that achondroplasics represent vestiges of pigmy races of past ages and they believe that many existing pigmy races are examples of atavistic return to such races which at one time peopled the world very largely. They cite the Okkas and Obongas as types of physiological hereditary and racial achondroplasia. They distinguish however a true from this ethnical achondroplasia. As Keyser[6] rightly remarks these dwarf races are well proportioned whereas achondroplasics are micromelic dwarfs. Emerson[7] says there are no white races of dwarfs and that all white dwarfs are evidently pathological. Since nearly all achondroplasic mothers who have had live children have been delivered by Cesarean section, he finds it difficult to believe that dwarf races can have originated from such cases as we know them.

Heredity certainly plays an important part in the reported cases. Baldwin[8] reported a mother and child, by Cesarean section, both showing a similar deformity. Boechk[9] reported a similar occurrence. A most interesting family is reported by Porter[10]. The father aged 80 and two sons exhibit the characteristic features of the disease. The father and the brother of the octogenarian and another son who was drowned were all said to have been similarly affected. Poncet et Leriche observed a brother and sister both achondroplasics. The familial nature of the affection is also exhibited in these cases.

It has been held that the disease is due to maternal intoxications, or to a fetal auto-intoxication. Ballantyne[11] quotes experiments in which, by inoculation of the parent animals with toxins of diphtheria, tubercle or pyocyaneus bacilli, offspring were produced whose hind limbs presented a deformity resembling the human type of fetal rickets. He would group the fetal bone diseases according to the period of antenatal life in which they were initiated, placing at one end of a series those cases resembling infantile rickets and which occur near the end of intrauterine life. Next to them would come cases resembling fetal

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rickets and showing also malformations and deformities, while at the other end of the series would come the manifestly teratological cases which are evidently originated in the embryonic epoch. He believes that these diseases are among the results of infectious processes which attack the organism during or before pregnancy.

Kassowitz[12] accounts for the condition by an injury to the cartilage from the diffusion of a toxin from the blood-vessels which are so numerous at the cartilaginous tissues. Winker[13] reports the case of a child whose mother, during the pregnancy, had been very poorly nourished, living upon a diet deficient in proteid and with an excess of carbohydrate, "conditions which produce rickets in extra-uterine life."

Consanguinity, maternal shock during pregnancy, alcoholism, lues, coincident disease of the mother, have all been cited as causative factors. The relation of achondroplasia to true rickets is difficult to discuss with any profit inasmuch as the nature of both diseases is unknown. It would certainly seem that they are nearly related nutritional disturbances. Their manifestations are no more dissimilar than those of many diseases whose etiology is well known. Macewen[14] remarks upon the occurrence of both affections in the same family, a fact which is exemplified in the case here reported.

After the discovery that thyroid disease in the young leads to marked interference in bodily as well as mental growth, numerous intra-uterine and extra-uterine growth anomalies were attributed to thyroid changes. Following the recognition of myxedema as a thyroid disease, Kocher's work brought forward the thought that even an anatomically little or unchanged thyroid might still be functionless. Fetal skeletal diseases were then reported as fetal cretinism or as fetal myxedema, and other conditions as mongolism, infantilism, true dwarfism and rickets were attributed to thyroid insufficiency. The condition of the thyroid has frequently been noted, and conclusions drawn from quite insufficient reports. That a thyroid is palpable or not, cannot be taken as an index of its activity. Virchow's[15] case showed an enlarged thyroid, Joachimsthal's, one of normal size. In West and Petit's case the thyroid was not felt. Morse[16] asserts that there was nothing abnormal about the thyroid in his case. Michael,[17] Herman,[18] Bullard and George[19] all mention the absense of a palpable thyroid. Sutton[20] found it twice the normal

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size. Bowlby[21] found it absent. Barlow[22] reported a thyroid normal to naked eye inspection. Langenbach[23] found it iodin and colloid-free. Collmann [24] reports it enlarged and without colloid. Certain appearances suggested degeneration, but as similar pictures have been reported in thyroids of new born animals and in other conditions (Askanzy[25]), he does not regard them as having any pathological connection with achondroplasia. Moro's[26] case had an enlarged thyroid as did the mother also. Microscopically the gland showed a deficiency of gland lumina and the gland structure was difficult to recognize. The lumina were filled with epithelial cells, and colloid was absent. This is one of the few cases in which a definite improvement followed thyroid treatment.

Of Kaufmann's[27] cases, two showed very pathological thyroids. One was very large and vascular, the alveoli filled with polygonal cells and colloid was present. The other thyroid, which was also very large and vascular, showed scarcely any lumina and no colloid.

The thymus and hypophysis have been blamed for the dystrophy, but little evidence has been brought against either.

Other pathological changes encountered by others, which were also shown in our case, were the enlarged mesenteric glands, enlarged spleen, showing plainly the adenoid tissue, and enlarged liver of Moro's case; the very much enlarged liver of Fisher's[28] case; the enlarged spleen of Silberstein's[29] case; the enormous liver, enlarged thymus, and large and rounded adrenals reported in Otto's[30] case.

Dieterle[31] maintains that achondroplasia cannot be due to athyreosis since the dystrophy manifests itself in the cartilage only, whereas were there an athyreosis the interference in growth would befall all the bony tissues equally. He concludes that no form of fetal skeletal disease can be traced to a disturbance in thyroid function.

Kienbock[32] believes the affection due to disturbed function of glands with an internal secretion, thyroid and hypophysis. Parkon and Marbe[33] accept the disturbed function of glands with internal secretion as a causative factor of dwarfism which stands in antagonism to giantism. The latter is due to increased function of the hypophysis, thymus and thyroid, and decreased or absence of function of the sexual glands, whereas in achondroplasia the reverse is true, a hypersecretion of sexual glands and hyposecre-

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tion of the antagonists.

Schirmer[34] declares that heredity is the only etiologic factor of note.

Kassowitz[35] suggests that the atrophy or disease of some hypothetical unknown organ, whose internal secretion regulates growth as does the thyroid, may be the cause of both micromelia and mongolism.

Moro suggests a new name to be applied to this "rare disease," which already bears so many,—13 different ones. He would call it "thyroid dysplasia," having no hesitation from the result of his studies in classifying the disorder in the single group of thyroid dysplasias.

My thanks are due to Dr Gerstenberger for permission to report the case and to Dr Marine for the pathological notes.

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Acute Anterior Poliomyelitis With Report of Two Cases.

By H. B. ORMSBY, M. D., Cleveland.

Acute anterior poliomyelitis is of such rarity, in this section of the country at least, as to make the report of these two cases interesting. Though it is one of the most common of the acute organic diseases of the nervous system in childhood, very few cases are met with in private practise. Hospital records report a case now and then, and a few years since several epidemics were reported from the Eastern States. It was first described by Heine in 1840 and is an acute infectious disease, its primary lesion being in the anterior horns of grey matter in the spinal cord. Its clinical course may be divided into four stages: (1) the stage of invasion, (2) the stationary stage, (3) the receding stage, and (4) the residual or permanent stage. It occurs sporadically or in epidemics, which makes us believe that it is due to a specific organism, although none has yet been isolated. The lumbar, then the cervical regions are most often involved, yet the pathologic process may extend along the entire cord to the brain, involving the medulla, pons, and crura cerebri. The condition may vary from a simple congestion with a feeling of malaise, slight fever, radiating pains in the shoulder or arm and no resulting paralysis, to an active inflammation and extensive degeneration of the nerve cells, often extending to the white substance of the cord and brain. When the stage of invasion is mild and followed by no sequelae it is often impossible to make a diagnosis; the patient may run a slight fever for a few days, perhaps not seeming sick enough to necessitate the calling of medical aid; there may be some digestive disturbance and the paralysis may be so slight and of so short duration that the parents have no suspicion of the real nature of the trouble. In other cases this indisposition and feeling of malaise may be followed by a paralysis of one or more of the extremities, which clears up in the course of from one to three weeks. Again, the child may go to bed as well as usual and the next morning the parents will find that the child is paralyzed in one or more of the extremities and has fever and prostration, lasting for several days and followed by coma and death.

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The disease occurs most often between two and six years of age, though cases are recorded in very young infants and in young adult life. There seem to be no predisposing causes, a perfectly well child living in good sanitary surroundings is just as liable to an attack as one in less favorable circumstances, and a child of robust health may contract it as quickly as a delicate one. The paralysis is always flaccid, motor, and begins at the proximal end of the limb or limbs, gradually involving the individual muscles or groups of muscles until the distal end is reached. This paralysis may result in atrophy of the whole limb or there may be perfect recovery, with the exception of individual muscles producing talipes in any of its forms according to the muscles involved. The mentality is preserved and there is no loss of sensation but in many cases there is a hyperesthesia of the skin. The sphincters usually retain their function, even when all the extremities are involved. The stage of invasion is from one to seven days, the stationary stage from one to six weeks, and the receding stage from three to six weeks or several months.

The prognosis is usually unfavorable in those cases which develop high fever and complete paralysis from the beginning; while in those with a more gradual paralysis there may be a complete recovery; in others a permanent atrophy of the entire limb may ensue, the limb remaining shorter and smaller than the corresponding one of the opposite side and hanging from the body like a flail.

In the differential diagnosis, extreme pain on pressure and contraction of individual muscles with a response to electrical stimulation are the main points to be considered. In multiple neuritis, which may be mistaken for acute anterior poliomyelitis, the progress is slower, often taking weeks to reach its acme, the child will have fever much longer and edema and disorders of digestion are much more frequent. The paralysis of the new born usually affects one limb only, and a history of trauma may be obtained. In acute myelitis spasms and ataxia are frequent, also bladder symptoms.

Hematomyelia may present all the symptoms of acute anterior poliomyelitis, making a differential diagnosis almost impossible when one is unable to get a history of trauma.

The treatment should consist of rest in bed for a week or two with regulated feeling; a cathartic to clear the digestive

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track; daily baths; massage; counter-irritation over the spine; passive motion, orthopedic apparatus or tenotomy for the resulting deformity; tonics of iron, with iodids to aid absorption; and fresh air.

The history of the two cases to be reported are as follows:

1. W. M., aged five, had been breast-fed and was well nourished. She had lived in good home surroundings and had never had any of the diseases of childhood. She went to bed as well as usual one night, but complained the next morning of pain in her shoulder, neck and right arm; she had a slight fever and did not care to eat as usual. These symptoms continued for about one week but were not severe enough to require medical attention, then the parents noticed that she limped slightly on the right side and that she did not use her right arm as freely as usual. A day or so later she did not use her arm at all and walked with great difficulty, so that in about three weeks from the onset the right arm and leg were completely paralyzed, and the left arm and leg were becoming involved. Medical aid was called after the child had been sick about one week, the doctor seeing her occasionally for about eight weeks. No diagnosis was made. At about this time she came under my care with a complete paralysis of all the extremities and the muscles of the neck, so that she was unable to hold the head upright. This was a flaccid paralysis, purely motor with no involvement of the sphincters and no impairment of the mentality. When the child was lifted from the bed all four extremities dangled at the sides like sticks tied to ropes. I made a diagnosis of acute anterior poliomyelitis and gave a favorable prognosis as to life, but guarded as to complete recovery. Improvement soon began and continued until at the end of four months there was a complete recovery.

2. W. H., a boy of eight years, previously healthy, had had measles and whooping-cough. He had been very well the last two years but one day was taken quite sick before breakfast with vomiting and fever. I saw him about 5 p. m. and diagnosed acute gastro-intestinal indigestion, but was called again two days later and found him crying with pain in the right arm and shoulder. The fever and vomiting had now subsided, the intestinal track was clear, the tongue was still coated; oil of wintergreen liniment and small doses of aspirin were ordered. The next day I found that the child could not use the arm and I made a diagnosis of acute anterior poliomyelitis. In about one week the right leg became involved, but the left side remained normal. Recovery of the arm has been complete, but now, after three months, there is a slight dragging of the foot, due to the paralysis of the extensor muscles.

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The Diagnosis of Tuberculous Hip-Joint Disease.

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The diagnosis of tuberculous hip-joint disease would usually present but little difficulty, were it not for the many generalities—true in the long run, but not necessarily holding good for any given case—which have been handed down in our medical lore as the only true type of hip-joint disease; and for another fact, that tuberculosis is usually not thought of as a possible diagnosis until the whole gamut of diagnostic mistakes has been run through, or until the typical abscess and fistula, together with marked deformity, results. Even then, such a patient is liable to fall into the hands of some—and their number is not few—who would send him to some resort to take the specified course of baths for *rheumatism*. To be more exact, let me repeat that the general facts that tuberculous hip-disease occurs usually in youth, has a slow and insidious onset and a chronic course, is accompanied by loss in weight, malnutrition, slight fever, etc., can have absolutely no weight in the diagnosis of any given case, for we know full well that, though most common in youth, it may occur at any time, even up to the age of 70 or over; it may occur acutely, usually after a slight trauma, and may bring with it a chain of acute symptoms; there may be no typical deformity, swelling or abscess; the patient may be fat, rugged and healthy looking; there may be high, low or no fever, etc. Let me quote one case as an example: When one is at the bedside of a young woman of 28, suffering from what seems to be an acute infection of the hip-joint, with high fever and pain so severe that the slightest jarring of the bed causes excruciating pain in the hip, the chances are almost certain that the trouble is not tuberculous, yet that fact has no bearing upon the individual case under discussion and tuberculosis must be thought of amongst the other possibilities and our diagnosis made from the clinical findings alone. In this case a careful investigation revealed no gonorrhea or syphilis, a tuberculous family history, previous loss in weight and well-being, weakness, pain and stiffness in the affected limb for six months

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before; and then, two days before the onset of the trouble, a wild automobile ride on a cold, raw March night, with the overturning of the car and spilling of the occupants. The clinical findings, together with the tuberculin tests and radiographs, showed this to be an atypical case of acute tuberculous hip-disease which later on ran the usual course.

The second stumbling block is this: far too often few physicians, when judging of any bone or joint lesion, think of the possibility of gonorrhea, syphilis or tuberculosis, and so refrain from rigid examination and questioning which would bring about confirmatory symptoms. Unthought of is undiagnosed. The school of Prof. Neusser of Vienna excells in that his method of diagnosis is by association and exclusion. His favorite method of quizzing was this, "The patient has a red pimple on his nose—you can all easily see that—but what may cause it? What processes must you think of when you see such a red pimple?" Parents and patients rarely give a physician the right clue when he is first called; they insist that they have heart-disease when it is only gas in the stomach or colon, and complain of stomach-trouble and indigestion when they have heart-disease or consumption. An accident leads them far astray from the truth, in their anxiety to learn of the immediate damage. A boy of three fell from a rocking chair backward off a low porch and struck the ground with his buttocks. He immediately set up a howl and shrieked with pain. A physician was hastily summoned and found the hip flexed, adducted, fixed and withal tender and painful; he hastily diagnosed a traumatic dislocation. An anesthetic was given and when the limb relaxed and straightened out under deep anesthesia, the supposed dislocation was pronounced set. A few hours afterwards the previous deformity and pain reappeared and a redislocation was suspected. What the physician overlooked was the fact that the acetabulum was not empty and that the head of the femur could not be palpated upwards and backwards under the gluteal muscles. What the mother forgot to tell the doctor was that for two months previously the boy had not been able to play all day with the other children, that he had frequent night-starts and was always tired in the afternoon and that the very reason he was in that rocking chair that afternoon was because he had pain in his right knee. She could think only of his fall and her anxiety reacted, by suggestion, upon the diagnostic powers of the physician.

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Again, one often seeks the easiest way out of a hard problem and for the want of something more exact or lucid, makes some easy makeshift of a diagnosis, which then clings. Both the profession and the laity make too much use of the word *rheumatism*, meaning thereby not a distinct, febrile, morbid process but rather pain in or about a joint or the muscles between the joints. The very busy man really has not time enough to make a careful examination of every patient who comes to him complaining of some pain or stiffness in a joint, the negligent man fails to take the time,—both are apt to think of rheumatism when they should consider tuberculosis or some other grave process.

Tuberculous coxitis gives rise to many varied symptoms, some of which I shall enumerate. Pain is a most important symptom, usually coming on in distinct attacks more or less severe; the severe ones are termed by Lorenz "pain storms." The pain is usually referred to the knee reflexly through the obturator nerves and has given rise to many curious and mistaken diagnoses of knee-trouble when the hip was at fault. The cause of the pain being usually the rubbing of the inflamed joint surfaces, it is therefore elicited when one attempts to move the thigh beyond the limits allowed by the reflex muscle spasm, or by having the patient walk. Spontaneous pain is due to direct action of the disease upon the synovial nerve endings. Tenderness to direct pressure upon the trochanter or over the acetabulum through Scarpa's triangle can often be elicited. Pain is, however, a comparatively late symptom and is usually preceded by a sense of weakness, etc.

The normal child, if allowed the physiological amount of rest, plays about all day without getting tired enough to complain about it, but a child the victim of coxitis soon tires and is unwilling to play when his companions are still fresh and energetic. He lies down to rest much more frequently than before and loses the powers of quick recuperation so characteristic of a normal child.

Muscle spasm (reflex) is as early a symptom as is the weakness of limb and is a beneficent and protective process. It is the cause of the typical deformity, the typical limb and the stiffness.

The limp is an early and important sign. Whitman defines a limp as "a change in the rhythm of the gait," a long step or interval alternating with a short one. It is more than this, for a limp may be produced by an alternating change in the relations of

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the trunk to the thigh as seen in the waddling gait—the Trendelenburg phenomenon of congenital hip-dislocation—the adduction limp. The limp of coxitis is an abduction limp, a swaying of the body outwards, or rather the raising of the opposite side of the pelvis when the patient steps on the diseased limb. Combined with this there is also a change in the rhythm, the patient rests on the affected limb for a shorter time, and usually bears the weight upon the toes. These two factors give a very characteristic limp so that a snap diagnosis can often be made from the gait alone.

Night-cries and spontaneous pain in the hip at night are characteristic. In my experience the typical night-starts are less frequent than spontaneous pain at night. Soon after the child has fallen into deep sleep he awakens with a loud scream of pain caused by the relaxation of the muscle spasm and the movement of the diseased joint. This is often repeated several times a night and the child may be thought to be suffering from nightmare, etc. On the other hand, many children play around all day without a murmur and begin to cry only at night, especially when the mother is somewhat rough in taking off the shoes and stockings, and continue to cry with pain during the night. I have known such children to be spanked and whipped regularly because they were supposed to be bad and unruly.

Stiffness or fixation of the hip is due to muscle spasm, it is a protective process and an early and valuable symptom. The range of motion—both active and passive—is restricted or obliterated in every direction although more in some than in others. Usually a smaller or larger range of motion is permitted in all directions up to a certain point, beyond which the reflex spasm inhibits it and causes the pelvis to move with the thigh. This is such a valuable sign that it should be carefully sought, and the range of motion permitted in the diseased side should be carefully compared with that in the sound hip, just as one tests the motion of the mamma for suspected fixation in carcinoma. To attempt to move the hip beyond the restricted range allowed by the muscle spasm causes pain. It is not out of place to state here that it is never necessary, in examining for stiffness and range of motion, to move the hip in such a way as to cause much pain; when the reflex spasm begins and the hip becomes fixed on the pelvis the symptom is elicited, any attempt to move the thigh farther is unwarranted and the giving of an anesthetic for the purpose of moving the hip, in this connection, is nothing short of criminal ignorance.

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The deformity assumes a typical appearance. Early in the course of the disease one usually finds the stage of apparent lengthening; the limb, in relation to the planes and axes of the pelvis, is slightly flexed, abducted and rotated outwards; the anterior superior spine of the affected side is lower than its fellow and the limb seems longer than its mate. After the disease has progressed we find that, from the spasm of the strong adductors, the first position has changed to that of strong flexion, adduction and internal rotation, often with an enormous amount of apparent shortening. The pelvis is tilted forward, giving rise to a lumbar lordosis, and the anterior superior spine of the diseased side is higher than its fellow. The buttock is very prominent and the patient steps upon his toes. The flexion and adduction are often so great as to interfere, in women, with proper urination, copulation and parturition. The hip and buttock lose their normal shape, the trochanter becomes very prominent, the buttock sticks out backward, the back is hollow and the gluteal fold elevated. There is often a swelling or sense of thickness over the trochanter. There is marked muscular atrophy. The deep reflexes at the joint are abolished.

The actual shortening of the limb is usually not great and for the purpose of diagnosis, unimportant. It is difficult to measure on account of the deformity. Some of the signs of real shortening are elevation of the trochanter above Nelaton's line, changes in Bryant's triangle, etc.

Fever is usually slight or absent. Pallor, loss in weight and appetite, night-sweats, etc., may or may not be present.

Abscesses are late symptoms. They are cold and may open up at any point down to the knee, or may burst through the acetabulum into the pelvis and point in Scarpa's triangle or in the perineum. They usually leave chronic fistulae.

The course of the disease and the age: There are a few general types to which most cases of tuberculous coxitis correspond.

The disease usually runs a typically chronic course, insidious and progressive with a constant advance in the destructive process and the severity of the symptoms, marked, however, with periods of apparent improvement and cessation to be followed by exacerbations more or less acute. In one variety of the chronic type the disease progresses by leaps and bounds with symptom-free

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intervals between. Fixation and muscle spasms are, however, always present, even in the pain-free intervals.

The essentially chronic form may be so obscure as to have been entirely overlooked until a trauma or a secondary infection brings on a recrudescence of almost explosive violence. These extraneous symptoms slowly subside and in a short time the characteristic symptoms of tuberculous coxitis become apparent.

There is a form of acute tuberculous arthritis (best described by Poncet) which is quite akin to acute miliary tuberculosis of the lung. One puzzling feature of this type of disease is the occurrence of vague pains and swellings in other joints of the body, resembling a mild attack of acute polyarticular rheumatic arthritis. These symptoms, I believe, are due to the sudden flooding of the system with the toxins of tuberculosis and are analogous to those due to an overdose of tuberculin. The acute symptoms subside gradually and leave only one joint—the hip in a case of coxitis—as the real seat of the disease.

Tuberculous coxitis is *par excellence* a disease of childhood and yet it is not well to think that all cases must occur at this age. While 50 to 75% of all cases occur during the first decade, some authors have recorded as high as 40% during the second, 10% in the third, 5% in the fourth, 1% in the fifth, 0.5% in the sixth and even 0.3% in the seventh. So it is well to remember that no age is exempt. My oldest patient was 57. The sexes are equally divided.

The diagnosis must be founded upon the exposition of several, or all, of the previously mentioned symptoms and calls for a most careful examination. Without this, such a diagnosis is mere guesswork and more mistaken diagnoses are due to the lack of a thorough examination than to ignorance. The patient must be stripped from the waist down—there is no escape from this—even though such a procedure may wound the oversensitive susceptibilities of prudish young man or woman. The patient must be placed upon a hard table in such a position that the lumbar spines almost touch the hard surface and the anterior superior spines lie in the same vertical and horizontal planes. To do this it will be necessary to put the limb into the position of the real deformity and if this is once accurately accomplished the rest of the diagnosis is easy, provided only that the possibility of tuberculous coxitis has been suggested by the fixation and deformity. The diagnosis must be confirmed by exclusion. There are five

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confirmatory experimental methods or tests for tuberculosis:

1. Koch's subcutaneous tuberculin reaction. The old tuberculin injection test of Koch, as is well known, is the most reliable but also the most difficult and tedious to determine. One injection of say 1 mg. of Koch's old tuberculin, if no reaction occurs, is not enough; the trial must be made repeatedly with increasing doses until possibly 5 or even 10 mg. have been given. Only then can the patient be said to be free from tuberculosis. I use this method in exceptionally difficult cases.

2. The local tuberculin reactions. (a) The von Pirquet skin reaction reveals tuberculosis *past* and *present* and works best in children; it is positive in about 75% of all tuberculous cases. (b) The Calmette eye-test is also quite reliable and reveals only *active* tuberculosis. It is more reliable in adults. It should be used only in a normal eye and is then free from danger. I have made personally, or have had made by competent men, over 150 such eye-tests and have never had one untoward result. It is reliable in 75% of all cases. For the past two and one-half years it has been my custom always to use both the Calmette and von Pirquet tests together, at one and the same time, and I estimate that by so doing the efficiency of the combined test is increased to at least 90%. I have used this combination over 100 times and have never had it lead me astray from the truth. Never yet have these tests failed me either in indicating tuberculosis when it was not present or by not being positive when one could make a clinical diagnosis of tuberculosis: but of course these tests are far from infallible. (c) I have not used the Moro or Detre tests enough to form any decided opinion about them.

3. The x-rays are of undisputed value in aiding in the diagnosis, but in many cases the pictures are far from conclusive and a negative radiographic finding cannot be taken as a positive proof of the absence of a mild form of tuberculous arthritis, as several excellent skiagraphs in my possession, made by competent radiographers, will show. They are of greatest aid in the differential diagnosis between the non-inflammatory conditions, such as fracture or dislocation, and tuberculosis. It is needless to say that to be of any value at all they must be of the best and usually no one but an expert is competent to judge of them. They are of less value in the differential diagnosis of inflammatory changes.

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4. The aspiration of the joint contents and the inoculation of guinea pigs with the fluid is a refinement of which few will ever make use, except for special studies. It finds no place in routine diagnosis.

5. The opsonic index—auto-inoculation test, is very reliable.

The differential diagnosis is not always simple and is often impossible for the time being with the clinical data at hand, although the tuberculin tests lighten the work considerably.

Local irritation or trauma bear but a superficial resemblance to coxitis. A fracture gives actual shortening, easily measured, and not to typical deformity, stiffness and muscle spasm. When not impacted there is crepitus and preternatural mobility; in a few hours there is swelling and sugillation. The pain and tenderness are sharply localized as in all fractures. Dislocation gives a typical deformity and stiffness but the acetabulum will be found empty and the head will be among the gluteal muscles. The x-ray clears up the problem at once.

Inflamed glands or veins, buboes, hernia, appendicitis and pelvic conditions may cause flexion of the thigh and pain on motion, but here the resemblance ends. A careful examination will establish the diagnosis.

The same is true of reflex spasms of the hip in such conditions as pin-worms, fissura ani, and gastro-intestinal auto-intoxication. I have in mind a case of the latter in which a child had night-cries and severe spasm and pain in the hip on three different occasions, each time after the ingestion of veal at the evening meal. The x-ray and tuberculin tests were negative and on each occasion there was no muscle spasm or stiffness after the second day when the bowels had been thoroughly evacuated. After the prohibition of veal no further spasms have been noticed.

Disease in the neighborhood of the joint, or even elsewhere, which travels to or near the joint will often puzzle one for a time. Pott's disease with a psoas abscess may cause pain and limping, also flexion, contractures and swelling. Sacro-iliac disease often has its pain referred to the hip and there is also a limp, but a careful examination will soon show the extraneous origin of the symptoms.

Subtrochanteric bursitis or iliopsoas bursitis are often puzzling but their symptoms are not characteristic of coxitis.

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Anterior poliomyelitis can be mistaken for coxitis only in its initial, acute, painful stage. In a few hours the paralysis becomes apparent.

Congenital dislocation of the hip presents a limp, but it is a typical Trendelenburg adduction limp—a waddle—while that of coxitis is an abduction limp. One can, however, be puzzled by a pathologic dislocation resulting from the destruction of the joint by tuberculosis, especially if, as I have once seen, the radiograph be wrongly interpreted. Clinical examination, tuberculin and a good x-ray will give a true diagnosis.

Coxa vara leads to pain, limp, limitation of motion and actual shortening; but in coxa vara one has real shortening with the position of flexion and abduction while in hip-joint disease one has apparent lengthening with the same position.

Flatfoot or other foot troubles may cause pain in the knee and a limp, but if one examines thoroughly, the real diagnosis will be apparent: the victims of hip-joint disease often develop a flatfoot of the healthy side, but on examination one can soon discover the two conditions.

The non-tuberculous infectious forms of coxitis may cause great difficulty in the diagnosis. The x-ray is unreliable and more than one grave error has been made in the differentiation. The tuberculin reactions will of course be of the greatest aid. After any infectious disease, scarlet fever, whooping cough, pneumonia, gonorrhea, etc., or even after a trauma, an arthritis may develop which, when severe, presents no especial difficulty, but when mild must often be given time to show its characteristics. It is in such cases that the acute forms of tuberculosis become so puzzling and it must be remembered that a latent tuberculous joint may be stirred into activity by an infection or a trauma; a tuberculous patient may develop scarlet fever or whooping cough and get an infective non-tuberculous arthritis. Plenty of time must be taken and every clinical and experimental diagnostic sign must be sought and given proper weight. There is one point which may help, abscesses and fistulae, which are the usual immediate concomitants of inefective arthritis, are usually late complications of tuberculosis.

Acute epiphysitis and osteomyelitis present acute infective symptoms, but the diagnosis may be difficult.

Mild simple or infective synovitis, especially when subacute or chronic, may present all the protean symptoms of tuberculous

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coxitis. The x-ray is unreliable but the tuberculin reactions will not be positive. Should the latter be positive then, no matter how mild the symptoms are, the case is tuberculous. Another point is that in the remissions of tuberculous coxitis the fixation and muscle spasms remain; in non-tuberculous coxitis these symptoms disappear. I have under my care at present a case of non-tuberculous coxitis of 14 months' duration.

Among the above, but yet of different nature, are the cases of gonorrhea and syphilis of the hip. As these are usually congenital they appear at an age when tuberculosis of the hip is unknown—the first few months of extra-uterine existence. After this they are rare until the age of puberty. A child previously affected with hip-joint disease may, however, be the victim of criminal intercourse and the disease may be discovered only by the examination after the event. In case of doubt the tuberculin reactions will be of value.

Acute polyarticular rheumatic arthritis should never be mistaken for any other except the acute form of tuberculous arthritis as described by Poncet; but even here rheumatism will be characterized by the real migratory joint involvement, especially in the smaller joints. The patients are sick in bed with an acute infection and not up and about for at least part of the day as most tuberculous patients are. In young children joint implication is not a common or marked feature of real rheumatism while the involvement of one joint alone is such a rarity that it is safer to make and use a plain dogmatic denial of its existence. Rheumatism should not be diagnosed in a child until every other possible disease has been rigidly excluded.

Chronic rheumatoid arthritis—osteo-arthritis of the hip; morbus coxarius senilis and juvenilis are characterized by local joint irregularity and malformation, stiffness, muscle atrophy and increased reflexes. The latter are always wanting in tuberculous arthritis.

Hysteria, often following a slight injury, is not unknown, even in childhood. There are no symptoms or combination of symptoms which the hysteric may not simulate. But there will always be earmarks and incongruities which will reveal the true character of the affection. The reflexes will be exaggerated, a sign always lacking in tuberculosis, or the pain will be severe, without fixation, or the fixation absolute, without real muscle spasm, or there will be extraordinary muscle spasm and no de-

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formity; but it is well never to forget that real tuberculous coxitis may not always present such a typical picture as may be supposed and it is better not to call a case hysteria until all our diagnostic methods have been tried. More cases are wrongfully diagnosed as hysteria when they really are tuberculous than vice versa.

821 Schofield Bldg.

A Case of Foreign Body in the Right Bronchus.

By S. H. LARGE, M. D., Cleveland.

The aspiration of foreign bodies of any size into the lower air-passages is relatively so uncommon and their removal, by means of the bronchoscope, is such a life-saving procedure in a condition otherwise so fatal, that the report of the following case seems warranted.

Baby W., aged one year, while sitting on the floor was seized with an attack of coughing. The mother called in a physician, who gave an emetic, as he thought the child had swallowed some foreign body.

At times the child's breathing would be natural, but the attacks of coughing became more frequent and prolonged, which so alarmed the parents that three other physicians were called in. They advised that the child be sent to Cleveland for a bronchoscopic examination. The child left Sandusky at 2:00 p. m., arriving here at 4:30, and was taken at once to St. Vincent's Hospital.

I saw the child at once on its arrival, and was afraid nothing could be done for it, as it was in such desperate condition. Dr Thomas hurriedly made a radiograph, but the plate was negative. A low tracheotomy was performed, and the bronchoscope introduced. There was nothing in the trachea of left bronchus but mucus. On exploring the right bronchus a foreign body was found, completely blocking it. On removal it proved to be a kernel of corn.

The operation was performed without any asepis, as the condition of the child would not warrant even our washing up or boiling our instruments.

During the operation, which was done practically without any anesthetic, artificial respiration was kept up. The tracheal wound was left open on account of its not being aseptic, but no tracheotomy tube was inserted.

The child was put in an inclined position and the wound kept free from all mucus.

There was a little elevation of temperature for two days following the operation, but this has entirely disappeared and on this, the seventh, day the pulse, respiration, and temperature are normal.

536 Rose Bldg.

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EDITORIAL

Policy of the Journal With Regard to Advertisements

The Journal is about to take the very important and serious step of excluding from its advertising columns, as fast as present contracts expire, all proprietary medicines except those which comply with the Rules formulated by the Council on Pharmacy and Chemistry of the American Medical Association, as listed in the "New and Non-Official Remedies."

The step is one which requires more than a little of courage, and of confidence in the good sense and good faith of the profession. It requires courage, for a large proportion of the income of this Journal, as of most other privately owned medical journals, is derived from advertisements which will now be excluded; and whilst the Journal is not published for financial profit, it must in some way meet its expenses.

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The risk is so great, that it has so far been taken, as far as we know, by only two privately owned journals (the Southern Medical Journal and the Old Dominion Journal of Medicine). Notwithstanding the risk, the directors of the Journal have had this policy under serious consideration for some time, and have concluded that a medical journal does not fulfill its proper function unless it does its best to adhere to the truth in all things. Whatever the wishes of the editor and the directors, they cannot escape responsibility for their advertising pages. Free editorial utterance is seriously hampered by an insincere advertising policy. A journal cannot honestly or successfully preach against its advertisers. Moreover, the time is approaching, if indeed it has not arrived, when some of the best men object seriously to having their writings on the next page to some blatant advertisement which insults the most ordinary intelligence. The Journal, it is true, has always exercised some discrimination. It has attempted to exclude the most objectionable advertisements; but it must acknowledge that the result has never been satisfactory. Such discrimination can only be successful, if it is based upon just and fixed principles and full information. The best principles—those most just to the profession and to the deserving manufacturer alike—are indisputably those which are embodied in the Rules of the Council.

The Council is the only agency with the facilities to collect the information which is required to apply these rules. The personnel of the Council stands so high that there can be no serious question as to the motives or ability of its members. The Journal, therefore, feels that it can do no better than to follow their advice It has no doubt as to the right or wrong of the matter, whatever the future may hold in store. Whether this step will be successful—whether it will raise the Journal to financial as well as to editorial independence, this is a matter which depends largely on the profession. In some way or other, the income must be increased to make up for the loss of these advertisements.

For this we look mainly to an increase in our subscribers. This evidence of our endeavor to make every page of the Journal of profit to the profession is in itself a very good reason for soliciting support by means of subscriptions and of acceptable papers. However it is not the sole, nor indeed the main argument. The Journal expects to appeal to an ever widening circle of readers by its own increasing merits, in other directions as

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well as in this, and expects to show itself worthy of support in every respect.

Cleveland has become one of the foremost medical centers, of much more than local prominence. There is no good reason why it should not have a medical journal of an influence commensurate with its importance—provided that the Journal is conducted in the right spirit and with the hearty cooperation of our local men. The present step is a token of this spirit, and we hope that our expectations of the cooperation of the profession has not been too high.

Visiting Nursing in Cleveland.

The work of the Visiting Nurse Association of Cleveland has grown and developed along such unusual lines for an organization of its sort, and touches and assists in so many ways the medical, sociological, educational, and even the business activities of this city, that the physicians of the community should be thoroughly informed as to the scope of its accomplishment and endeavor.

At first sight it is unexpected to find that the students of our medical schools are better taught in obstetrics; that the work of the hospitals and dispensaries is increased in efficiency; that the promotion of the backward pupil in the public schools is facilitated; and that one of the large factories of Cleveland is more economically conducted because of the Visiting Nurse Association. Yet all these things, and others as practical, are true and have come about because, whatever the field in which a visiting nurse was required this organization, though established with the aim alone of providing district nurses for the poor, has stood ready to supply any new need as the occasion arose.

The term visiting nursing was originally used interchangeably with district nursing, and is still generally understood to imply the service of trained nurses in sickness in the homes of the poor. There are 10 such district nurses in Cleveland at present; their work is invaluable, and twice their number could with advantage be employed did the funds allow; but the district nurses proper, constitute only a third of the present staff of the Cleveland Visiting Nurse Association. Twelve of its members, having previously served as district nurses, are engaged daily under medical direction in the work of five different dispensaries,

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each designed for a special purpose and dependent for its permanent success upon the repeated observation, instruction and care of nurses in the homes of the patients. Thus there are visiting nurses at the Tuberculosis Dispensary, the Western Reserve Maternity Dispensary, the Cleveland Maternity Dispensary, the Babies' Dispensary and at the Lakeside Hospital Dispensary where one is engaged in social service work and one in the care of crippled children. In these several dispensary fields the visiting nurses have proved indispensible. Most physicians are, of course, thoroughly familiar with the part the nurse plays in the tuberculosis work and in the struggle to lessen the infant death rate among the poor. The utilization of the visiting nurse in the outpatient obstetric clinics, developed primarily for the training of medical students, is more novel, and has proved a great success in securing more efficient care before, during, and after the confinement of the poor women themselves, with a consequent great increase in the number of patients seeking help. The students of the senior class of the Western Reserve Medical School last year averaged 15 obstetric cases each, in the dispensary clinic. It is proposed by the trustees of Lakeside Hospital, who have found invaluable the visiting nurse who devotes herself to social service among the poor out- and in-patients, to give their nurses their obstetric training in the same field, securing a visiting nurse, trained in maternity and district work as a teacher for the pupils in the homes of the poor.

In addition to these two groups of visiting nurses in districts and at dispensaries, one member of the staff of the Association is engaged by the Cleveland Hardware Company to hold dispensary hours daily at its factory and to visit the homes of employees in cases of disabling sickness. There are also five school nurses, and the Board of Education is considering doubling this number, and two nurses directed by the City Department of Health, in control of scarlet fever and diphtheria, who are members of the staff precisely as the dispensary nurses are part of it. The fundamental feature of their work also is instruction by object lessons in the homes they visit daily. One of the great industrial insurance companies of the land is considering the advisability of obtaining the services of a nurse to visit in illness the homes of their policy holders among the poor.

All these nurses wear the uniform of the Visiting Nurse Association, share in its weekly meetings and return records to its registrar. This means that all the nurses visiting in the homes

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of the sick poor in Cleveland, whatever the special field, are in close touch with each other and that each is able to bring to the aid of her patient or her patient's family and neighborhood the wide range of medical relief represented in the work of the whole staff. This can not only be done promptly, but without loss of continuous personal responsibility.

Such close organization of all the visiting nursing done in one city is, we believe, unique. Chicago's 40 school nurses are appointed by the Visiting Nurse Association and work under its supervision, but the nurses of the Tuberculosis Institute are quite independent. In New York there are several strong nursing organizations whose work is visiting in the homes of needy patients but their efforts are unrelated and their nurses are reported as constantly treading on each other's heels. Similar reports have come from other cities, in the light of which the development of visiting nursing in Cleveland appears fortunate. Economy of time and effort are obvious resulting advantages. Harmony of method in daily work and harmony of design in planning new fields of usefulness are equally important ones.

The Benzoate Controversy.

The admissibility of sodium benzoate as a food preservative is fast becoming one of those unfortunate controversies in which the heat of discussion seems to produce more smoke than light, obscuring rather than illuminating the true issue. Dr Wiley, our national watchdog over the purity of the food supply, caused the prohibition of the use of benzoate, in any quantity, for this purpose. Dr Wiley's objections were twofold: Firstly, by experimenting on a food-squad, he thought to have demonstrated that benzoate is directly injurious to health. Secondly, he holds that it facilitates the use of spoiled raw materials, especially tomatoes —for so far the controversy revolves mainly around tomato catsup. It is a little difficult to see, without actual demonstration, how benzoate can restore spoiled tomatoes to their pristine flavor —at least no scientific data appear to have been published on the subject, so that we may leave it out of consideration. Nor need we trouble ourselves very much with the question whether prime catsup requires a preservative. It is inconceivable that a vegetable pulp can be exposed with impunity to the conditions which obtain in second-class restaurants, especially in the summertime,

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unless a chemical antiseptic is added. Even under the most favorable conditions of the home, the contents, once the bottle is open, must ferment without this addition. Home-made catsup and the product of some factories is preserved by acetic acid; other manufacturers prefer benzoate, presumably to avoid the strong vinegar flavor. This is a question about which epicures may dispute—the real issue narrows down to the question of the effect of benzoate on the health of the consumer.

In this respect, the manufacturers were quite unconvinced by Dr Wiley's findings; and at their request, the government appointed a "Referee Board" to investigate the question. This board also worked with food-squads, investigating the effect upon the general state of health, upon digestion, metabolism and excretion, with generally negative results. The administration of the drug was conducted somewhat differently than in Wiley's experiments, which may, in part, explain the different outcome. At all events—and this is the one satisfactory point in the controversy—the competence of the investigators of the referee board (Chittenden, Long and Herter) is above question, and their results must be accepted without reservation—so far as they go!

Unfortunately, however, these results leave some loopholes for very plausible doubts as to whether they really dispose of the whole benzoate question. The functions which were investigated are so essential to the welfare of the organism that they are protected by very effective "factors of safety," to use Meltzer's pregnant phrase. Only a very few powerful or specific substances affect the digestibility of food, or general metabolism, or the permeability of the kidneys, in a normal individual. It would be a rather difficult task to demonstrate through these functions that drugs as powerful as alcohol or nicotin are deleterious in moderate quantities.

The negative outcome of the experiments is therefore not very surprising—but it seems to leave open the question whether the result would have been similarly negative if the factors of safety, the mechanisms of accommodation, had previously been exhausted, as they might well be in disease or as might be done experimentally. We do not know, but it is a little suggestive that about the only function included in the investigation which is not so effectively protected by safety factors—intestinal fermentation—appeared to Dr Herter to furnish a definite if slight indication of positive results. The report of the referee board is

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highly satisfactory as settling definitely the first question in the benzoate controversy, and it is to be hoped that the remaining questions will now be taken up.

The most unfortunate feature of the affair is the fact that it may lend itself to the political purpose of discrediting the whole of Dr Wiley's valuable work. In fact, one cannot escape the impression that some of this agitation is an attack upon Wiley along a line, unimportant in itself, but not very easy for him to defend—a sort of entering-wedge for the unwholesome-food forces. It would seem rather premature, even now, to affirm that Wiley's stand was a scientific error; but if he erred, he did so on the side of public safety. It was surely no heinous offense to throw the burden of the proof of the benefits of benzoate on the manufacturers. We hope sincerely that the controversy will be settled on a scientific basis, with due regard to the manufacturers as well as to the public health, but we hope still more that the result, whatever it may be, will not be permitted to interfere with Dr Wiley's usefulness. The American people could afford much better to dispense with catsup, altogether, than to dispense with Dr Wiley, and go back to the ante-food-law days. T. S.

Ophthalmoscopic Findings in Cerebral Arteriosclerosis.

The intimate relationship between the circulation of the eye and of the brain is readily appreciated. It is a well recognized fact that in arteriosclerosis one set of vessels may show decided changes in their walls, while other vessels are still in fairly good or even normal condition. The change may be chiefly in the peripheral vessels or in the vessels of the kidneys, the heart or the brain, so that the condition of the palpable arteries, such as the radial or brachial, may give no idea of the true condition of other very important arteries, as for example, those of the brain.

With the ophthalmoscope the vessels of the eye may be studied and changes detected, so slight, that they would not be palpable in the peripheral vessels, even though present. Actual experience confirms the theory that the condition of the retinal arteries is frequently an excellent index to the condition of the cerebral arteries, hence arises the importance of an ophthalmoscopic examination in cases of suspected cerebral arteriosclerosis. Recognition of the condition in the early stages is of special importance, for at that time treatment may accomplish something.

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The ophthalmoscopic changes at this stage may be only slight compression of the veins by the overlying arteries and "silver wire" appearance of the arteries, with possibly also corkscrew appearance of certain arterial twigs and congested appearance of the nerve head. The picture may vary from such changes, so slight that they can be detected only by the expert, and then sometimes only when the pupil has been dilated, through all gradations, including hemorrhages, edema or exudate in the retina, swelling of the nerve head, etc., to the typical picture of marked so-called albuminuric retinitis or neuroretinitis, a picture that can be readily recognized by any person who can use the ophthalmoscope at all. At this stage, however, such confirmation is usually not needed and the disease has progressed to such a degree that little or really nothing can be done for it. An ophthalmoscopic examination may also be important in making a differential diagnosis between cerebral arteriosclerosis and brain-tumor.

This relationship between the eyes and the brain not only suggests a valuable aid in diagnosis to the general practitioner but also indicates a duty resting upon the ophthalmologist who may be the first to detect these earliest signs of beginning arteriosclerosis. This is the time of all others when something can be done for this condition and such a patient should be referred at once to his family physician or to the proper expert who can at once institute the proper measures to avert the more serious later stages of the disease. W. E. B.

Milk Sickness or Trembles.

More and more stress is now being laid on transmission of diseases from animals to man, whether the animals act as carriers or the disease of the animal is itself transmitted. Recent careful work by Jordan, Harris and Luckhardt has brought again to our attention one of these diseases which has been more or less neglected of late years. It was first recognized by Dr Daniel Drake of Cincinnati in 1810, and has since been found to be distributed over the majority of the Middle Western States. Known as milk sickness or trembles it has been found to be at present endemic in parts of Ohio, Indiana, Illinois, Michigan, Kentucky, Tennessee, North and South Carolina, Texas and New Mexico. It is a disease primarily of cattle and sheep and in them is mainly characterized by lassitude and muscular weakness, accompanied at

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times with twitching and trembling and signs of nervous excitement.

Constipation may or may not be present and there is no rise in temperature. The disease is apparently transmitted to man both by the raw milk products from the infected animals and by their flesh when insufficiently cooked. Carnivorous animals, feeding on the flesh of animals dead from the disease, themselves acquire it. In man there is acute and violent vomiting, with obstinate constipation and great muscular weakness; the symptoms may resemble ptomain poisoning and it is the opinion of the authors that cases of apparent ptomain poisoning in these localities should be carefully investigated The breath in animals and in man has a distinct odor of acetone.

In the districts where the disease is endemic there are certain small localities, often single pastures which are known as nests of infection and carefully fenced off. The infection remains in these areas indefinitely unless the pasture is put under cultivation, when it becomes at once and permanently safe. Mineral poisons, in association with especial plants, as noted in connection with loco disease, have never been found by chemical analysis, and no poisonous plants have been found to be common to the various pastures. The authors have isolated an organism of peculiar characteristics from the internal organs and the blood of animals dying with the disease and have inoculated it into animals. They have also cultivated it from the soil of "milk sick" regions. The lesions in many cases of experimental inoculation have been very similar to those found in the disease acquired in the usual way, but the fact that many of the animals showed no ill effects, and that organisms apparently identical have been cultivated from the soil of regions where milk sickness has never been known, leaves the question unsolved. Publications of this sort offer the opportunity to the physician at large to make careful observations on cases of this type which come to his notice, especially if his practise lies in districts known to be infected, and it is only by means of numbers of careful reports that the matter can be properly cleared up. R. G. P.

Nystagmus as a Diagnostic Sign.

Recent observations, both clinical and experimental, have demonstrated the value of nystagmus as a diagnostic sign in diseases of the inner ear and cerebellum. Nystagmus of laby-

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rinthine or cerebellar origin possesses certain characteristics which differentiate it. Such nystagmus is rhythmical, consisting of a slow and a quick component whereas nystagmus of ocular or other origin is undulating or pendulous—that is, both movements, the excursion from and return to any fixed marginal point are equal in velocity and in extent. Although the occurrence of nystagmus in affections of the inner ear and cerebellum has long been observed, the careful study and classification of this phenomenon and the placing of it among the list of objective signs possessing a true diagnostic worth, is largely the result of the epoch making investigations of Dr Robert Barany in the clinic of Prof. Politzer in Vienna. Barany's investigations have shown the following: that ear nystagmus, in addition to being rhythmical, is rotatory in character. With glance in the direction of the quick component, the intensity of the nystagmus is markedly increased, while glance straight ahead, or in the direction of the slow component, causes it to decrease in intensity or even to disappear. Experimentally nystagmus may be produced by turning, syringing the ear with hot or cold water, galvanic stimulation, or by compressing or rarifying the air in the external auditory canal.

If a patient is placed on a revolving stool and turned toward the right, during the turning there occurs a rhythmical nystagmus with quick component to the right. After the turning has ceased, the nystagmus persists for a varying interval, 20-120 seconds, but the direction of the quick component is reversed. With turning toward the right the after-nystagmus is toward the left and vice versa. Experience has shown that after-nystagmus is quite as reliable and subject to the same laws as the nystagmus which occurs while the turning is in progress. Observation accordingly is usually made of the after-nystagmus only as no cumbersome apparatus is required for its production.

Syringing the ear with hot water, kathode stimulation or irritative lesions of labyrinth or cerebellum give a nystagmus whose quick component is directed to the side of the stimulation or lesion. Syringing with cold water, anode stimulation and destructive lesions give a nystagmus with quick component directed to the sound side. Rarefaction and compression of the air in the external auditory canal in cases of labyrinthine fistula cause typical ear nystagmus but the direction of the quick component is not uniform. This may perhaps be accounted for by

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the variations in the location of the fistula and the consequent alterations in the movements of the endolymph. The nystagmus is associated with dizziness—often, in addition, with nausea and vomiting. Decreasing the nystagmus with glance in the direction of the slow component decreases the dizziness while glance in the direction of the quick component increases its severity. So the decubitus of patients affected with labyrinthine or cerebellar disease is easily explained. With an irritative lesion, e. g. of the right labyrinth, there occurs a nystagmus toward the right. The dizziness is increased by glance in the direction of the quick component (or to the right), decreased by glance in the opposite direction. The patient accordingly lies on the right side with face buried in the pillow. In this position the eyes are involuntarily turned toward the left and the dizziness and discomfort are accordingly alleviated. Similarly with a cerebellar abscess, causing a nystagmus to the diseased side, the patient would lie on the side of the lesion. A destructive lesion of the right labyrinth would cause a nystagmus to the left. In this case the decubitus would be on the left or sound side as glance toward the right, or in the direction of the slow component, would relieve the dizziness.

Turning in the upright position upon a revolving stool or syringing the ear with hot or cold water will give one an idea of the location and character of the lesion. For example, with a nystagmus to the right there would be present the following three possibilities: (1) An irritative lesion of the right labyrinth; (2) a destructive lesion of the left labyrinth; or (3) an abscess or tumor of the right cerebellum. Information will, of course, be afforded by a careful examination of the ear, but the testing of the nystagmus will give additional light. If the lesion on the right is an irritative one syringing the ear with hot water would increase the nystagmus, while syringing it with cold water would cause it to disappear or to reverse to the opposite side. With a destructive lesion of the left labyrinth, causing a nystagmus to the right, the left labyrinth would be no longer active and neither hot nor cold water would have any effect. With an irritative lesion of the right cerebellum, causing a nystagmus to the right, syringing the right ear with hot or cold water would be without effect as experience has shown that cerebellar abscess is associated with destructive lesions of the labyrinth and not with lesions of an irritative character. With destruction of the labyrinth the

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after-nystagmus from turning is stronger toward the sound than to the diseased side.

The recent investigations of many observers, but most of all those of Barany have accordingly established that nystagmus is a sign of great diagnostic importance and have, in addition, proved that the semicircular canals in large part and the cerebellum to lesser degree are the seats which preside over the function of equilibrium. W. B. C.

Department of Therapeutics

Conducted by J. B. McGEE, M. D.

Antitetanic Serum: In the *International Clinics*, Vol. III, series 19, L. Lagane considers the present position of antitetanic serumtherapy. The results of observations upon animals are absolutely precise. The antitetanic serum has no effect on a case of tetanus in evolution, except perhaps when used in intracerebeal injection, and confirmed tetanus in animals is always fatal; but on the other hand its preventive power is absolute, if it is injected before, or at any rate shortly after the production of a tetanus-infected wound. In man, on the contrary, observations are remarkably varied, their interpretation contradictory, and many cases warrant the following two unexpected conclusions: (1) A possible *curative* action of the serum; and (2) an uncertain *preventive* action. In certain cases the serum, given in large doses, appears to have had a curative action in man, whereas this does not seem to be the case in animals. This serum has merely the action of a counter poison or antidote, and even that in an entirely temporary manner. It has no effect on the tetanus bacilli localized at the point of inoculation; it does not impede their development and it does not hinder the germination of the spores. Its role, which is a very limited one, is to render inoffensive the toxin circulating in the blood by combining with it. It has not even any effect on the toxin fixed in the nerve cells, as the latter have an elective affinity for the tetanus toxin and do not allow themselves to be impregnated by the antitoxin which would be for them a liberating agent. Finally this antitoxic action of the serum is entirely temporary, as its effect does not last more than a week. After that time if the tetanus wound still exists, and if there are local complications which facilitate the development of the bacilli, the toxin secreted, no longer finding any antitoxin to neutralize it, will produce its customary results; when, however, the antitoxin is renewed in proper time, its preserving power is prolonged for a fresh period. The dry serum recommended by Calmette is not as active as the liquid serum and should be used for wounds that are superficial, easy to disinfect, and not likely to contain the tetanic germ. The true preventive treatment of tetanus is the removal of infectious germs by every possible means: asepsis, antisepsis and even surgical intervention.

Diet in Typhoid: H. M. Fussell in the *American Journal of the Medical Sciences* for October, states that diet in typhoid fever must be prescribed with two objects in view: maintenance of nutrition, and the avoidance of gastro-intestinal disturbances. The claim that milk, as compared with solid foods, causes a good culture medium is not well founded. Statistics by Kinincutt show that perforation and hemorrhages are slightly less in patients on a free than

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in those on a milk diet; but aside from this, the tympany and diarrhea, which some writers attribute to milk diet, exist more in the imagination than in reality. When tympany does occur with a milk diet, when diarrhea is excessive, the milk may be withdrawn; it may be substituted by peptonized milk, junket or albumin water. Any physician of experience will be certain without statistics that gross errors in diet do cause both relapses, and intestinal accidents, in typhoid fever. If hemorrhages occur all food must be withdrawn. Water may be given in small quantities; in 24 hours albumin water; then peptonized milk. After one week the usual diet may be resumed. If perforation occurs there is no question of diet: the case must at once be handed to the surgeon for operation. Thromboses are said to be much less frequent in cases well fed than in cases fed on liquid diet. Patients may run a temperature of one or two degrees above normal for days and weeks after a normal temperature. In these cases food must be given. He advises to study each patient well, and feed him according to his needs. First, put the patient on a liquid diet, with milk and egg albumin as a basis. Increase the diet up to a limit of 2500 calories by the addition of starches, minced chicken or meat chopped fine, chopped soft parts of oysters, soups, after the diet of Shattuck. Keep a careful watch on the stools and on the digestive functions, to see that neither undigested curds or other particles pass, and that tympany, diarrhea and constipation do not occur. The presence of particles in the stool, whether milk curds or other matter, is at once to be taken as an indication to remove the offending article of food from the diet list, or to change its character. If diarrhea or tympany continue, stop all foods and begin again with digested milk, eggs, etc.

Heart Block: George Bachman in the *Archives of Internal Medicine* for September, reports a case of heart-block. One of the most interesting of the disturbances of cardiac function is the one known as heart-block, a condition in which the auricular and ventricular rhythms are dissociated and in which a most notable infrequency of the pulse is usually observed. Dissociation of the contractions of the auricles and ventricles is most often found in patients suffering from the Adams-Stokes's syndrome. There have been, however, a few undoubted cases exhibiting the symptom-complex of permanent bradycardia in association with syncopal or epileptiform attacks, in which the condition of auriculoventricular dissociation could be definitely excluded. On the other hand, heart-block, complete or incomplete, has been found in cases in which there were at no time any of the nervous phenomena which characterize the Adams-Stokes's syndrome. Heart-block of a transitory character may also be observed in digitalis poisoning. He has previously shown that strophanthus given in medicinal doses in a case of complete heart-block decreased the auricular rate, while the ventricular rate remained practically constant. The action of the drug was also studied in the same case, m. v. of the tincture of strophanthus (U. S. P.) being given three times a day, from Nov. 21 till Nov. 25, on which date the dose was increased to m. x. and continued at this till Dec. 7, when it was withdrawn altogether. The most striking effect on the heart's action was seen in the notable decrease in the frequency of the auricular contractions; no such effect was exerted on the ventricular contractions, they being conspicuously increased in rate, and in this way an approximation toward normal heart action was brought about. The improvement of the circulation under the influence of strophanthus was a most remarkable result. The syncopal and epileptiform seizures which had been increasing in frequency and severity gradually became less frequent, and in a short time disappeared, not to return again even after the withdrawal of the drug. The patient ultimately felt so well that he left the hospital. That vagus stimulation in cases of complete block is not incompatible with decided improvement in ventricular action is shown in the study of the effect of strophanthus here reported.

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Calcium Lactate: In the *Medical Record* for Sept. 25, W. K. Simpson reports the results of his experience with calcium lactate in hemorrhages of the upper air tract. The use of calcium salts for the control of bleeding has been employed so long as to make them a factor deserving profound consideration. Their efficiency depends upon the increase of the calcium content of the blood, and consequent diminution of the period required for coagulation. He reports one case in which all the known means had been employed in a patient subject to severe attacks of epistaxis, but without any positive effect in their control until the use of lactate of calcium when the result of its use was quite positive in its control and far exceeded the effect of any previous medication. While there has been quite a diversity of opinion as to the value of the calcium salts in hemorrhagic conditions, his conclusions are: (1) Clinical experience shows that calcium lactate has a controlling influence in hastening the coagulation of the blood. (2) Its efficacy is more marked in hemophilic cases, in which the coagulation is delayed, than in cases with normal coagulation time. (3) Before operation, especially on tonsils and adenoids, careful inquiry should be made relative to any hemophilic heredity or tendency. (4) In suspicious cases the coagulation period should be determined before operation. (5) It is questionable, if not positively contraindicated, whether such operations should be undertaken in hemophilic cases except under the most extreme urgency. (6) In all operations for the removal of tonsils and adenoids, calcium lactate should be given for a period prior to and after the operation, both for its possible effect in diminishing the immediate hemorrhage and in preventing secondary surface hemorrhage. (7) Of the calcium salts, the lactate is most positive in its results, is most agreeable to administer, and is least irritating to the stomach.

Phenolphthalein: A. L. Benedict in the *Therapeutic Gazette* for September writes concerning phenolphthalein, that enough time has elapsed to enable the profession to make a fairly reliable estimation of its value as a therapeutic agent. The general consensus of opinion is that it is of little use in single doses to produce a clearing out of the bowels, but that it is efficient as a laxative, given somewhat like cascara in one to three daily doses for periods of a few days to weeks. It also seems to correspond to the conception of a cholagogue, and to tend to produce a free flow of bile and to check bacterial processes in the gall-bladder and biliary passages. The action of the drug is ascribed to a direct irritation and the production of increased peristalsis. So far as may be concluded from reports of accidental overdoses, no danger is to be apprehended from phenolphthalein in any quantity likely to be prescribed or dispensed at once. A single dose of 10 centigrams (grains 1½) will occasionally produce free movement, or even some diarrhea, after a state of constipation, but the drug cannot be depended on for an immediate single action. The ordinary dose repeated thrice daily for several days, or a week or more, seems to be from five down to three centigrams (from 1/6 to ½ grain) and as in the case of cascara, the effect may be graded by varying the frequency of the dose from thrice to once daily, or even giving one dose on alternate days. Insofar as he has used it for the liver, gall-bladder and its contents, its use has been empirical, and he disclaims any blind faith in a possible solvent or antiseptic action. Indol in the feces and indican in the urine, have seemed to diminish under its use, but not to a greater degree of rapidity than could be ascribed to its laxative action alone. Henry M. Becker in *Merck's Archives* also summarizes its advantages as follows: (1) Smallness of dose. (2) Absence of griping and after-effects. (3) Insolubility of the salt. (4) Ability to give it to a nursing mother without its entering the breast-milk. (5) Certainty of action. (6) Freedom from danger even in exaggerated doses. (7) Ready administration in agreeable form. (8) Safety of its administration in pregnancy. (9) No cumulative action.

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Phenol Poisoning: Harry J. Novack in the *Monthly Cyclopaedia and Medical Bulletin* for August, reports upon the antidotal effects of alcohol upon phenol. Within recent years a number of antidotes have been suggested, but none have become so well known and generally used as alcohol. Dr Seneca D. Powell first suggested its use as an antidote internally, having learned its great value as an antidote when used locally in external application of phenol or carbolic acid. Strong alcohol cannot be used internally, and when diluted its antidotal force is lost. The internal use of alcohol as an antidote to phenol has not only proved ineffective, but even dangerous. Although alcohol acts the same internally as it does externally, still the result is harmful when it is left in the stomach together with the phenol. When a large amount of phenol has been taken and alcohol is given while the poison is still in a free state, death will be much hastened: the alcohol in this case acts like an oil in phosphorus poisoning by increasing absorption. The importance, therefore, of first removing whatever poison there is in the stomach before using alcohol cannot be too strongly urged. This is best accomplished by lavage, for which many solutions may be used, but the best results are obtained from a solution of the two most well known and best antidotes for this poison, namely albumin and magnesium sulphate. To every eight or ten ounces of water a few grains of sodium chlorid are added, and the white of one egg is dissolved in it, then enough magnesium sulphate to saturate the solution is added. He concludes that (1) The peculiar phenomena, by reason of which alcohol has been acclaimed an antidote to phenol, are the result of its solvent and repellant properties, and not of any chemical antagonism. (2) Phenol or carbolic acid, though it is a powerful corrosive, limits its destructive process by the formation of an albuminous coagulum. (3) Alcohol is of great value externally when used early, but late, the destruction of tissue is not prevented, although the appearance is better. (4) On account of the repellant and solvent properties of alcohol it is dangerous to be left in the stomach together with the phenol. (5) The advised treatment is first lavage with some solution as the magnesium sulphate-albumin mixture, followed by lavage with a solution of alcohol as a clearing agent.

The Thyroid: *Lancet)* treats of the value of the thyroid gland Leonard Williams in *Merck's Archives (The* in nocturnal incontinence. Adenoids, according to the textbooks, are one of the two commonest causes of nocturnal incontinence. In a number of cases, however, in which the adenoids were removed, the incontinence still continued and he was led to prescribe the thyroid extract with, in several cases, the most remarkable results. Of 25 cases only one failed to respond to the treatment. With this one exception some were brilliantly successful, all were improved, and in no case has the thyroid extract produced any of those untoward effects of which we are taught to beware. When adenoids are associated with nocturnal incontinence he feels justified in asserting that they are both due to a common cause, namely insufficiency of the internal secretion of the thyroid gland. This insufficiency accounts for the vast majority of cases of nocturnal enuresis in children, as shown by the fact that the exhibition of thyroid extract will, in a comparatively short period of time, effect not only a cure of the enuresis but a great amelioration of many coexisting evidences of ill health. When it was thought desirable to employ anything in addition to the thyroid extract, these additions have consisted in tonics, such as iron, arsenic, and iodin. He recognizes that in the treatment of enuresis by thyroid extract, the question of dosage is one not only of paramount importance but also of the utmost delicacy. It is essential to success that the initial dose should

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be very small; that this dose should be increased very cautiously, if at all: and that the minimum dose, which experience proves to be productive of good results, should be steadily persevered with and reinforced if necessary by such tonics as have been noted. The dose given of the thyroid extract, in the cases reported by Williams, ranged from ½ to 2½ grains three times a day.

Migraine: In the *New York Medical Journal* for August 14, J. N. Cohen considers the analogy of migraine and rheumatism. He believes that any factor which may be considered a predisposing cause of one of these diseases may be considered a predisposing cause of the other. He rather believes with Wellspaugh that the cephalalgia and accompanying gastric disturbances of migraine are probably due to uric acid or to one of the incompletely oxidized end products of nitrogen metabolism. As to treatment, the various coal tar products have been prescribed with more or less success but these do not cure the disease, they relieve the patient temporarily or as long as they are used, and they should not constitute a prolonged course of treatment as recommended by some writers. Cannabis indica, caffein and ergot also have their advocates. The most successful method is to treat the patient exactly as if he were suffering from any acknowledged rheumatic affection. Salicylic acid and its compounds stand preeminent, and when slightly employed form a most valuable remedy. A prolonged course of the acid or its derivative preparations was always attended by marked beneficial results, in fact complete cures. The fresh sodium salicylate was preferred: to this cannabis indica may be added but it was never found to be absolutely necessary. Favorable results also followed a prolonged course of average sized doses of aspirin, to which phenacetin and caffein may be added during an attack. Salophen was also found efficient in a few cases but salol and the other salicylate preparations were not tried sufficiently to permit comment on their activity. If anemia is present iron and arsenic are indicated, and the eliminative organs of the body should receive considerable attention.

Anemia: The *Journal A. M. A.* for Sept. 25, states that perhaps the best, or most important of all, treatment of anemia is fresh air and sunlight in the best possible hygienic and climatic surroundings. The next most important element in the blood improvement is the diet, one that contains sufficient meat combined with such vegetable foods as contain iron, and arranged so as to be most easily digested and assimilated by the individual patient. The next consideration is that of drugs, and it is essential to determine the number of red corpuscles and the hemoglobin content, before the best medicinal treatment may be inaugurated. If the patient has a loss of hemoglobin in excess of the loss of red corpuscles, iron is certainly indicated; but the amount needed is theoretically very small. It is beyond all reasonable doubt that an inorganic iron is just as efficient in raising the hematin content of the hemoglobin and improving the anemic condition as is any organic iron. As to chlorosis, large doses of iron have sometimes been found of more benefit than small doses, and if chlorotic girls also have the condition of amenorrhea there is no drug that will be of more benefit than thyroid extract if administered in small doses. Here menstruation develops and chlorosis disappears in a large proportion of cases. The dose of thyroid extract in chlorosis should be small, three grains of the official preparation a day. As to arsenic in chlorosis, while small doses may be of value, its efficiency is not to be compared with that of iron or even thyroid extract.

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Academy of Medicine of Cleveland.

Clinical and Pathological Section.

The sixty-second regular meeting was held Friday, October 1, 1909, at the Cleveland Medical Library, W. B. Laffer in the chair.

W. G. Stern showed radiographs from two cases of tuberculosis of the knee. The lesions were quite extensive, as proved by operation, but the negatives, although clear, failed to show any evidence of the disease.

E. O. Houck presented a child, aged 18 months, with choreiform movements. The child was breast-fed for 10 months. At 11 months it had summer diarrhea and was put on artificial foods. At 14 months nervousness with irregular choreiform movements, especially of the head and which ceased during sleep, and marked nystagmus developed. There was no evidence of rickets or heart lesion. Improvement followed the administration of Fowler's solution, but the best results were obtained from monobromated camphor. Chorea was rarely seen at such an age but it seemed the most probable diagnosis.

The program was as follows:

1. Acute Anterior Poliomyelitis, with Report of Two Cases, H. B. Ormsby. (Appearing in full on page 683.)

In discussing the paper W. G. Stern said that the disease in its epidemic form was very apt to progress along local lines of travel. Many cases were complicated with multiple neuritis and suffered with excruciating pains; these cases usually made a partial recovery very rapidly, the neuritis clearing up before the poliomyelitis. Absolute rest with the employment of splints to prevent deformity was most necessary in the treatment.

2. Clinical and Experimental Observations in a Case of Infantile Tetany, H. J. Gerstenberger. (Appearing in full on page 671.)

In reply to a question of H. B. Ormsby as to the diet since the improvement of the symptoms, the speaker said that the child had received about one quart of milk daily with vegetables and fruit. The facial phenomenon, which had been entirely absent during the summer, was now present again. It was impossible to say whether this freedom from symptoms during the summer was due to the treatment or to the change of season.

3. Ankylostomiasis, with Report of a Case and Presentation of Specimens, M. Coplan. (To appear in full in the journal.)

4. Diagnosis of Hip-Joint Disease, W. G. Stern. (Appearing in full on page 686.)

J. E. Tuckerman asked when the speaker would consider the tuberculin test negative.

P. A. Jacobs drew attention to the value of the opsonic index in the diagnosis of tuberculosis. While 75% of tuberculous cases would respond to the ordinary tuberculin test, very few would fail to respond to the opsonic test with suitable autoinoculation experiments.

R. K. Updegraff asked as to the clinical diagnostic symptoms of syphilis of the hip. He had seen such a case which had been treated previously for tuberculosis, but which had entirely cleared up when a syphilitic lesion in the mouth was discovered and specific treatment given.

H. J. Gerstenberger differed from the speaker as to the value of the von Pirquet tuberculin test. Investigations showed that 90% of all adults give a positive reaction to the skin test and that 20% of children over four years of age would do the same. A positive skin reaction simply indicated that at some time the patient had had a tuberculous infection; many patients, therefore, with joint symptoms, who reacted to the test, did not necessarily have tuberculosis of the affected joint.

W. G. Stern, in concluding, said that no reaction to a single large

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dose of tuberculin was conclusive. One must begin with a dose of 0.1 mg. and if there were no reaction increase it at suitable intervals. The opsonic index was a valuable aid in diagnosis, but, while very reliable, it was difficult to carry out in private practise. Syphilis of the hip might be very difficult to differentiate from tuberculosis from the symptoms alone; a history of a syphilitic infection, response to specific treatment, and absence of a tuberculin reaction would help in the diagnosis. Personally he had found the cutaneous and ophthalmic tuberculin tests very useful and reliable.

Experimental Medicine Section.

The forty-fifth regular meeting was held Friday, October 8, 1909, at the Cleveland Medical Library, G. W. Crile in the chair.

The program was as follows:

Ten Years' Progress in the Field of Metabolism, Otto Folin, Professor of Biochemistry, Harvard University. (Appearing in full on page 645.)

J. J. R. MacLeod, in the discussion, said that the average medical man frequently did not realize the amount and character of the work going on in the laboratories. Many of the questions under investigation often seemed to have no apparent applicability in practical medicine, but even already a number had proved of the utmost value in clinical work. The researches upon special metabolism were taking the place of those on general metabolism. Instead of merely trying to balance income and output in the animal body, the present-day investigator was trying to gain insight into the intermediate stages which occurred in the body. Purely chemical discoveries of recent date had been utilized in furthering such experiments; the pure chemist and the biochemist worked hand in hand, the former discovering some new substance and the latter attempting to prove its presence in the animal body, as exemplified in the researches upon the constituents of the protein molecule. Proteins became broken down during digestion into simple nitrogenous bodies. In their absorption these were recombined to form protein, and the exact nature of the bodies chosen for this purpose depended on the nature of the protein. These nitrogenous degradation products of protein were called by the Germans "Bausteine"—they were the building stones from which protein was built up. The remarkable specificity of protein, beautifully demonstrated by Ehrlich's work, was therefore probably due to slight differences in the nature, or proportion, or manner of combination of the "Bausteine." The modern method in metabolism experiments was not so much to estimate the total as to determine the relative proportions of the different metabolites. This had been rendered possible by the publication of Folin's work, which had opened up an entirely new field of investigation. It had, for example, been found that with a diet poor in nitrogen, the proportion of the total nitrogen excreted as urea was less than with a nitrogen-rich diet, from which it was concluded that the urea represented mainly the exogenous nitrogen, a waste product from the diet, while the endogenous nitrogen from tissue metabolism was largely represented by bodies other than urea. This theory put the whole subject of nitrogen metabolism upon an entirely new basis. Undoubtedly in the intestine there occurred a sorting out of the degeneration products of protein; those needed by the organism were absorbed while those useless ones were destroyed, the nitrogen forming urea, and the carbon residue being utilized for the manufacture of fat, etc.

In regard to his difference of opinion from the speaker as to uric acid metabolism, he wished to point out that the diet had been very different in the two classes of experiments. He had given four or five times as much nitrogen as the speaker had used and he had found the purin nitrogen excretion constant, whereas in the investigations of the speaker it was not

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constant. The endogenous purin bodies came from certain tissues whose metabolism was not affected by moderate reduction of diet, but became depressed when there was nitrogen starvation. Folin's claim that kreatinin was the most typical representative of endogenous metabolism was accepted, although there was little doubt that the purins excreted on a purin-free diet, since they were so little affected by great variations in diet, must also be important representatives of endogenous metabolism. Burian and Schur pointed out that when an extreme variation was made in the diet a diminution of the endogenous purin excretion took place and Folin had used a diet very low in nitrogen.

G. N. Stewart drew attention to the fact that a reconstruction of one's ideas upon metabolism was now necessary every few years. He felt sure that it afforded much gratification to all present that so harmonious an exposition of the subject had been given by the most eminent biochemist of America. In the investigation of these problems we owed more to Folin than to any other worker in this country. The researches of Chittenden upon nitrogen equilibrium with a diet of low nitrogen content had created great interest and tended to show that the customary amount of protein in the diet at any rate in Western countries, was far too high. He wished to ask whether the fact that, in general, people living freely took more nitrogen than Chittenden found necessary, did or did not indicate that such a surplus was really advantageous.

T. Sollman said that the whole subject, until recently, had seemed at a standstill, notwithstanding the enormous amount of work being done upon it. The occurrence of a primary fruitful stage of the investigation of metabolism followed by a sterile period, which, in turn, had been succeeded by a second fruitful era, had been well pointed out by the speaker.

Prof. Folin, in conclusion, referred to the points brought up in the discussion and pointed out the clinical value of the fact that it was possible for a man to live upon a diet extremely low in protein.

Academy Meeting.

The sixty-ninth regular meeting of the Academy was held Friday, October 15, 1909, at the Cleveland Medical Library, the Vice-President, H. B. Ormsby, in the chair.

The report of the two previous meetings of the Council were read by the Secretary. The first, on June 24, 1909, was reported on page 449 of the Journal (August issue). The second was, in part, as follows:

The Council of the Academy of Medicine of Cleveland met Tuesday, August 24, 1909. The following were elected to active membership: Horatio F. Chisholm, E. X. Zaworski and Morris Schott. For Associate Membership: Bernhard Anderson, masseur; Henry H. Myers, D. V. S.; and W. T. Sparhawk, D. V. S.

The names of the following applicants were ordered published: For active membership: Hugh McNeely, Reed W. Anderson, Thomas J. Taylor, and Otto F. Zimmer. For non-resident membership: Charles H. Smith, Toledo, Ohio.

The resignation of Pearl Hahn Henle was accepted.

The alleged unprofessional conduct of James Stotter was discussed at length. Dr Stotter was heard and the Council went into executive session. After discussion it was voted that the Secretary of the Academy be instructed to reprimand Dr Stotter and that the charges be laid on the table.

Other matters of interest to the profession were discussed but not acted upon officially.

The President of the Academy, W. E. Lower, who will be absent during the unexpired part of the year, in taking his leave, presented the Academy, through the Council, with a gavel which was informally accepted.

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The program was as follows:

1. Dementia Praecox Caused by Dental Disease. H. S. Upson.

Three cases of severe insanity treated by relief of dental caries and alveolar abscess were reported. Two of the cases recovered and one was convalescent. Two of the cases were of dementia praecox, the other patient was profoundly melancholy, and showed in addition such signs of mental weakening and moral deterioration as probably to bring her case into the same category.

H. H. Drysdale, in the discussion, said that in this extremely interesting and instructive thesis, the speaker, whose neurological attainments commanded the utmost respect and admiration, presented the contention that the majority of cases of dementia praecox were genetically attributable to disorders of the teeth and that the eradication of these defects offered the best prospect of cure. Unfortunately, he could not, himself, agree with these views. In the first place dementia praecox was at present classified as an autotoxic condition which finally induced neuronic degeneration. Case after case had been reported recently in which necrobiotic changes were found in the frontal lobes and cerebellum associated with fatty degeneration of the thyroid gland. Recent studies of the blood in dementia praecox showed evidence of a toxic state. Then again these patients had a weakened resistance as 50% of them succumbed to tuberculosis. In the second place, he could not believe that defective teeth, or faulty formation of the teeth and that alone, was sufficient to provoke actual insanity in persons with normal brains. There must be something else; something deeper; something to do with the inherent integrity of the nerve cells which must be considered. There were thousands upon thousands of persons in this country with disordered or defective teeth, painless or painful, who had escaped these troubles. It was of course easily understood how irritative disturbances of dentition or irritative lesions of any part of the physical economy could, and did, many times disrupt the mentality of individuals whose neural organizations were unstable or enfeebled, but to place the entire blame upon the teeth was a view which was not upheld by the best authorities. Bianchi, whose experience in such matters could hardly be questioned, unqualifiedly asserted that he had never seen a patient with the so-called dementia praecox syndrome whose ancestral history was not neuropathically or psychopathically tainted. Nevertheless the speaker's experiments were instructive and he had unquestionably accomplished much good. His paper conveyed a timely message as to the importance of correcting all apparently minor defects and bringing the physical condition up to the highest possible standard. As a profession, we were decidedly neglectful of such matters. There was considerable merit in these theories provided they could be held within conservative bounds. Unfortunately such had not been the case, as he was familiar with many cases in which the promiscuous extraction of a large number of teeth was wholly unjustifiable. As he had stated before, the views as presented, while not altogether new, had true scientific worth provided they were properly safeguarded. In closing, he should like to ask one question: In what percent of all cases in which teeth had been removed had there been a total subsidence of all psychic symptoms for a period of at least one year?

J. S. Tierney said that the subject was one of great interest and if the speaker's findings would contribute to the possibility of curing these psychoses he deserved our hearty thanks. The pathology of the general psychoses, such as dementia praecox, was not well understood. Jung in a long series of investigations could find no constant pathologic lesions. Meyer at first, some eight or ten years ago, assumed the position that there must be constant changes in the nervous tissues in such patients, but after a lengthy investigation upon a large number of cases he had failed to prove his point; he had retracted his former statements and now believed that environment had a great deal to do with the etiology of the disease. From the results reported in the speaker's paper it seemed ex-

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tremely probable that local irritations might contribute largely to the causation of such psychoses.

W. H. Humiston referred to a case which he had treated with the speaker. The patient had endometritis and a uterine displacement. After correction of these troubles she partially recovered from her melancholia and suicidal tendencies. Soon after this a skiagraph of her teeth was taken and dental lesions discovered. When these were remedied her mental condition promptly and completely recovered and she has since remained well, for almost three years. Many recoveries from nervous diseases had been noted after removal of irritative lesions in the pelvis and other parts of the body and there was no reason why dental irritation should not be the cause of some of the psychoses.

W. A. Searl said that the classification and diagnosis of psychic disorders had been, and was, a great problem yet unsolved. The group under consideration had been divided into certain types by Kraeplin who investigated by studying the writings and observations of A. Pick and Kaulbaum, and by following a number of cases for a period of 12 years. This group was characterized by physical and psychic manifestations, most prominent of which were stereotyped expressions and verbigeration. Based on observations of the clinical course, he also gave as a theoretical pathology, diseased processes of the brain involving the cortical neurones, and suggested that certain physical disturbances suggested auto-intoxication which might, in some way, be related to processes in the sexual organs. Personally, in an experience of many years, he had not seen a case of this group, or learned of any, in which the patient had not, at some period, practised self-abuse. This offered a fair basis for a pathology; yet one was not justified in saying masturbation was more than one of the etiologic factors and possibly only an effect. Observations by such men as Bianchi gave us no pathology. Bruce, in his exhaustive studies of somatic signs and physical diseases, mentioned the integument, but said nothing concerning dental diseases. As already mentioned, Jung had fairly well established a pathological psychology for dementia praecox.

Adolph Meyer, perhaps the leading authority in this country today, felt that we must not be satisfied until definite demonstrable pathologic lesions of the organism were discovered; later, he warned his hearers to be careful of the environment and advised against too long restraint in hospitals.

Men changed their views from time to time, but there seemed to be one condition which all agreed necessary for the development of this disorder, that was a constitutional hereditary state evidenced by noticeable lack of organic development, infantile uterus, undeveloped teeth, etc. He wished to refer to that period a few years past when in this locality dementia praecox in females with exacerbation of symptoms at the menstrual period, was relieved by removal of the ovaries, uterus or both. This proved to be good treatment in a few cases, but the results were not proportionately satisfactory. The possibility of dental disease acting as other diseased processes in these cases, must not be lost sight of. Marked psychic improvement had been noted accompanying, or following, acute febrile disturbances. Was it not reasonable to conclude that stimulation of neural energy or the neurones might give rise to better mental control? The speaker's report was instructive and taught us to be more painstaking and careful in our examinations. He hoped future work would prove the theory advanced to be correct.

H. S. Upson, in conclusion, said that six of his cases of dementia praecox had recovered. Two of these were recent cases. In the remaining four the recovery had lasted over one year. Two of these had merely an occasional headache or sleepless night, such as might occur in an ordinary individual. One of these two had never complained of pain until the mental symptoms disappeared; then she occasionally would experience pain such as stomach ache, etc. She also had occasional fits of temper. Reference had been made to the frequent removal, in former years, of the ovaries and womb for various psychoses: this was the result

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of an incorrect inference from the favorable results obtained after this procedure when the organs had been diseased, and it led to the mistake of removing normal ovaries for similar conditions. Personally he had never advised the removal of normal pelvic organs or of normal teeth. The skiagraph fortunately enabled us to detect abnormal conditions of the teeth hitherto undiscoverable. Dementia praecox was not due to disease of one organ only, nor could it be cured by one procedure only. Dental disease without pain was frequently found in, and was a causative lesion of, dementia praecox; but pelvic or other irritation could fill the same role. It was only by taking a comprehensive view of the subject and realizing that irritation in various localities was capable of causing such diseases that we could hope to cure them.

2. The Essentials in the Treatment of "Non-Ambulatory" Cripples Deformed by Infantile Paralysis. H. O. Feiss.

In one group of cases crippled by infantile paralysis the lower legs were so deformed that the patients were unable to stand or walk. This condition was usually not due to the paralysis directly, but to contractures involving the ankles, knees and hips. Although a few of the cases could be put upon their feet by means of simple apparatus, a great majority required forcible manipulations and cutting operations. The contractures of the ankle were dealt with according to ordinary indications. In the knee, precautions must be taken that the treatment be carried out with due regard to the shortened vessels and nerves; therefore not too much force must be used at one time. In the hip, the tight strands were usually the tensor vaginae femoris and the neighboring fascia. Straightening of the hip was not always complete until the patient got into an upright position. The limbs having been straightened out, the simplest apparatus for getting the patient on his feet were caliper braces which made the knees rigid. With the help of crutches the child would soon be able to get about, except of course if there were paralysis of the upper limbs or of the back and waist muscles. This report did not go into the details of subsequent treatment but confined itself purely to that phase which put the child in a condition to get about. Nine cases were included in the report to show the steps in the treatment, and two of these patients were presented at the meeting.

3 The Surgical Aspects of Tuberculous Cervical Lymph Nodes in Children, A. F. House (to appear in full in the Journal).

F. E. Bunts, in discussing the paper, said that Jacobi, as a result of large experience, believed that enlarged glands of the neck in children under two years of age were rarely tuberculous and rarely due to tonsillar infection, but were usually secondary to infection of the posterior pharynx: with inflamed tonsils the submaxillary glands were but rarely enlarged, while in any pharyngeal infection, as for instance diphtheria of this area, the cervical glands were rapidly and markedly involved. Indications for operation was very different in children and adults. Operations were usually necessary for tuberculous glands in adults, but in children the operator should be more conservative and if the glands required removal the larger ones only should be taken and too wide a dissection avoided, lest permanent atrophy of some of the muscles, etc., remain.

D. S. Hanson agreed with Jacobi's observations. Tubercle bacilli were rarely found in tonsils removed from tuberculous children, and it was claimed that the bacilli were destroyed in the tonsils. The mucosa of the nasopharynx was very abundantly supplied with lymph vessels and it was only reasonable to suppose, therefore, that absorption would be exceptionally rapid and glandular involvement frequent. Infections from the air must be frequent and these were probably more liable to occur in the nasopharynx than in the tonsils.

P. A. Jacobs said that an exact diagnosis should be made early and for this purpose the tuberculin reaction was not always specific. The determination of the opsonic index was much more reliable especially after inducing an artificial auto-inoculation by massage of the glands.

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He gave a report of a case in which this had been done and in which treatment with emulsion of tubercle bacilli had given very satisfactory results. A great advantage of such treatment, especially in female adults, was the avoidance of operative scars upon the neck. In such a case if the glands were broken down, the contents could be aspirated with an aspirating syringe and this procedure repeated if necessary.

A. F. House, in conclusion, said that he did not advocate operative treatment in every case. In his paper he had divided the patients into groups, some of which required operation, while others did not. If the glands were causing active trouble he would advise radical treatment. The opsonic treatment was undoubtedly valuable, but the average general practitioner had neither time, skill or knowledge to carry out the details of this procedure. The incision should be made as carefully as possible to avoid injuring the muscles or nerves which would lead to scarring or atrophy. Constitutional treatment, favorable environment, abundant nutritious diet, etc., were most essential: these were all that were necessary in some cases, but if found insufficient operation might be demanded.

Book Reviews.

Common Disorders and Diseases of Childhood. By George Frederic Still, M. A., M. D. (Cantab.) F. R. C. P. (London). Professor of Diseases of Children, King's College, London. Physician for Diseases of Children, King's College Hospital; Physician to Out-Patients, Hospital for Sick Children, Great Ormond St. Honorary Member of the American Paediatric Society, London. Henry Frowde. Hodder & Stoughton. Oxford University Press.

The contributions to pediatric medicine that have come, through more than half a century past, from the Hospital for Sick Children, Great Ormond Street, are many and notable; and any writing from the men on the staff of this London "mother of children's hospitals" is received with interest and expectation. Dr Still, well known as teacher, investigator and writer, is a worthy example of the great clinicians that this hospital has developed, and like his elder colleague, Sir Thomas Barlow, has himself, from its wards, given to the medical world a lucid description of an unrecognized form of disease in childhood, which has received his name, and bears witness to his clinical acumen.

His book, therefore, is sure of a welcome and deserves a hearty one. As its title, "Common Disorders and Diseases of Childhood," implies, and as Dr Still emphasizes in his introduction, it is not a systematic textbook, covering the whole field of pediatrics and considering each topic in due proportion, but its several chapters are especially devoted to the forms of illness and disease most often met with in the wards and out-patient clinics of a children's hospital or in the course of general practise, though not omitting the rarer affections, such as infantile scurvy, apt to be mistaken for the more common ailments. The volume is probably the better for its intentional limitations, for Dr Still discusses all his chosen subjects in such interesting and admirable fashion that one finds nowhere the perfunctory writing that almost inevitably mars some part of the comprehensive treatise. It is a book that the medical student should be urged to buy and read, to supplement his essential textbook, whichever that may be, of the many good ones today available; and the practitioner is sure to peruse its pages with pleasure and profit for the author has the gift of lucid exposition, and presents his own observations and conclusions from a great experience in the diseases of childhood. The book is eminently a personal one, and its especial aim the consideration of the practical and clinical aspects, of disease, particularly diagnosis and treatment.

The Oxford Press deserves all praise for its activity of the last few years in the publication of medical books and for the worthy dress in which they appear. E. F. C.

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A Textbook of Surgical Diagnosis. For Students and Practitioners. By Edward Martin, M. D., Professor of Clinical Surgery, University of Pennsylvania, Philadelphia. Octavo of 764 pages, with 445 engravings, largely original, and 18 full-page plates. Cloth, $5.50 net. Lea & Febiger, Philadelphia and New York.

The opening chapter of the work deals with laboratory diagnosis. Owing to the limitations of space it is very questionable whether this subject should be included in a book on surgical diagnosis, as the presentation of the material can be only fragmentary and very incomplete, and a seeker for details and methods will naturally go to the manuals and textbooks devoted to the subject.

The important chapter on the application of x-rays in surgical diagnosis is written by H. K. Pancoast and is valuable; many illustrations, particularly of fractures, have been introduced.

One hardly expects to find chapters on the diagnosis of diseases of the skin, eye and of the nervous system in a book with the title "Surgical Diagnosis," yet such chapters appear. One is led to fear that the author has attempted too much. Diseases of the nervous system are discussed by T. R. Weisenburg, who has presented a great deal of useful information in the 82 pages at his disposal.

There are chapters on the blood-vessels, lymph-vessels and glands, muscles, tendons and bursae, bones and joints, and genito-urinary organs; the chapter on the last named subject is an excellent one, as would be expected from the author's large experience, and from his previous writings.

Brooke M. Anspach has contributed the section on gynecological diagnosis.

It would seem to the reviewer that in a work of this kind much attention should be devoted to history-taking, to a description of methods of procedure followed by the surgeon, and a presentation of the line of thought and of reasoning pursued in making a diagnosis and containing a correct appreciation of the surgical aspects of a case. One would like to see the important teachings of anatomy and pathology drawn upon and utilized in evolving a surgical diagnosis, and the student taught the applications of these scientific branches to practical surgery.

On the whole the book is to be heartily recommended as furnishing a vast amount of information in the text, which is supplemented by the numerous excellent illustrations. The work of the publisher has been well done. C. A. H.

The Malarial Fevers, Hemoglobinuric Fever and the Blood Protozoa of Man. By Charles F. Craig, Captain, Medical Corps, U. S. Army. Illustrated by four colored plates, 25 clinical charts and 25 photomicrographs and drawings. William Wood & Co., New York. Price, $4.50 net.

The author states that: "While several excellent works dealing with the laboratory side of the subject have appeared within recent years, no complete treatise upon the malarial fevers has been printed in English since 1901." It was to meet this demand that Craig, whose wide experience in the tropics makes him eminently qualified to speak upon this subject, has written the above book.

Part I discusses the etiology and geographical distribution of the malarial fevers in a systematic way and deals with the work of pioneers which eventually led to the discovery of the malarial plasmodium and its various specific forms. The morphology and biology of the plasmodium in the blood of man, the developmental stages within the mosquito and the method of transmission of the disease to man are carefully considered. The general and special pathology of the malarial fevers are dealt with in a short chapter forming Part II.

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The following division, Part III, is of particular interest to the general practitioner and clinician and the numerous charts and case reports contribute much in making the clinical aspect of the disease clear to the reader. Pernicious, latent, masked, and recurrent malarial fevers are all carefully considered as are also the anomalous forms seen in childhood.

Part IV is devoted to the sequelae, complications and prognosis of malaria. Of especial interest is the consideration of the development of nephritis, anemia, and splenomegaly. The author wisely advises against the use of the term "typhomalaria," for years so commonly and erroneously employed by many to cover their ignorance.

The diagnosis, prophylaxis and treatment of the malarial fevers are dealt with in Part V. Emphasis is laid upon the importance of careful routine blood examinations in the case of all patients residing in, or recently returned from, the tropics. The technic used in staining the plasmodia and the enumeration of the artefacts commonly mistaken for them are considered in detail. If practitioners in general followed the author's advice as regards the prophylaxis and treatment of malaria, their patients would be saved many relapses and this disease would become much less prevalent in certain localities where it now abounds.

The last two parts are devoted to the study of diseases and parasites more essentially tropical in nature, though of great importance and interest to students of medicine. Hemoglobinuric fever, Leishman-Donovan bodies, trypanosomes and the spirochaetes are carefully considered.

The book is well and concisely written, the bibliography extensive, the cuts and charts good. Altogether the work is the most satisfactory and complete treatise on malaria in the English language. L. W. L.

Immunity and Specific Therapy. By W. D'Este Emery, M. D., B. Sc., London. Clinical Pathologist to King's College Hospital and Pathologist to the Children's Hospital, Paddington Green; formerly Assistant Bacteriologist to the Royal Colleges of Physicians and Surgeons, and sometime Lecturer on Pathology and Bacteriology in the University of Birmingham. With Illustrations. Paul B. Hoeber, New York. Price, $3.50, net.

The time has come for the appearance of numerous works on immunity and specific therapy, and as a result the practitioner is at a loss to know which book will give him a clear understanding of this complicated and ever-changing subject. This book of 447 pages deals with the subject in such a manner to make it understood by others than those specially trained along these lines. Chapters I to XIV cover the subject of immunity, giving an impartial account of the various theories but not supporting any particular school of thought. Chapter XV is devoted to specific therapy of the following infections: Staphylococcic, streptococcic, pneumococcic, gonococcic, meningococcic, tuberculous, diphtheric, syphilitic, tetanic, dysenteric, typhoid, cholera, plague, anthrax, rabies, Malta fever, and B. coli.

The book is very instructive and can be highly recommended to the practitioner seeking knowledge on this subject. P. A. J.

The Sexual Disabilities of Man and Their Treatment. By Arthur Cooper, Consulting Surgeon to the Westminster General Dispensary; Formerly House Surgeon to the Male Lock Hospital, London. Paul B. Hoeber, New York. Price, $1.00 net.

This is a well written handbook containing accepted views on the subjects it covers. The author, in his preface, says that he hopes it will be of use to students who become practitioners, with little knowledge of matters which receive but scanty recognition in the medical schools of this country. H. L. S.

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American Practise of Surgery. A Complete System of the Science and Art of Surgery, by Representative Surgeons of the United States and Canada. Editors: Joseph D. Bryant, M. D., LL. D.; Albert H. Buck, M. D., of New York City. Complete in Eight Volumes. Illustrated. Volume Six. Wm. Wood & Company, New York.

This volume continues the discussion of regional surgery. Prosthesis in its Relation to Surgery of the Face, Mouth, Jaws, and Nasal and Laryngeal Cavities, is written by Chas. R. Turner of Philadelphia. Special attention is paid to appliances for the relief of cleft palate, the restitution of lost parts such as the nose, larynx, etc., and the fitting of splints for fractures of the jaws. Harris P. Mosher of Boston contributes a very excellent chapter of 169 pages on Surgical Diseases and Wounds of the Nasal Cavities and Accessory Sinuses. This is very complete and profusely illustrated and sufficiently detailed to add much to the encyclopedic character of the work. Surgical Diseases and Wounds of the Mouth, Tongue and Salivary Glands, by Geo. E. Armstrong of Montreal, occupies some 93 pages. The subject is well discussed but the majority of references to opinions and cases are British or Continental, which rather belies the title "American" of this System. There may be a paucity of American literature upon this topic or it may simply indicate the close relation existing between the Montreal and the British schools. John M. Elder of Montreal writes upon Surgical Diseases and Wounds of the Neck. Surgical Diseases and Wounds of the Thyroid and Thymus is by Francis J. Shepherd of Montreal. His personal results in exophthalmic goiter, 25 cases with three deaths, are really better than the figures suggest since he has been careful to exclude all doubtful cases which are often included in this category. Several large plates, illustrating the technic of operation, are reproduced from Kocher, the great authority on this subject. Surgery of the Thorax and Spinal Column is contributed by Norman B. Carson of St. Louis. Special attention is paid to fracture of the spine, the advantages of prompt operative interference being pointed out. Tuberculosis was discussed in a former volume but the non-tuberculous affections and the various deformities are considered. Harvey G. Mudd of St. Louis, in a 50 page chapter, discusses Surgical Diseases and Wounds of the Female Breast. Cancer, of course, receives the most attention and the radical operation, as devised by Halsted, is considered so satisfactory by the author that a fairly full abstract of Halsted's original article is included, together with reproductions of several of his illustrations. Surgical Diseases and Wounds of the External Genitals and Vagina in the Female is by Wm. P. Graves of Boston. Procidentia of the uterus is included in this category; for marked cases of this condition he advises ventral fixation by means of the uterosacral ligaments to the abdominal wall or a total hysterectomy and suture of the vaginal vault to the abdominal wall. These measures seem to the reviewer rather extreme even for marked cases. F. G. Balch of Boston contributes nearly 100 pages upon Surgical Diseases and Wounds of the Male Genitals and deals with the subject very satisfactorily. Chancroid and Gonorrheal Urethritis is written by Hugh Cabot of Boston. He believes the internal administration of urinary antiseptics useless, so far as the urethral process is concerned, but attributes a favorable influence to the balsamics. Early local treatment is advised and he is not strongly partisan as to the method, either the syringe or irrigator proving effective. His criterion as to when a gonorrhea may be considered cured, while far less exacting than some, is probably about correct. The concluding chapter by Joseph C. Bloodgood of Baltimore is on Surgical Diseases and Wounds of the Jaws. Special attention is paid to tumors; he emphasizes the importance of a correct diagnosis since in some cases ever the most radical operation is useless, while in others, apparently similar, a very conservative non-mutilating operation may result in a cure. This chapter is certainly refreshing in that the author deals with the subject very thoroughly and at the same time speaks from the authority of his own experience, this personal

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factor adding greatly to the interest. This volume maintains the high standard set by the preceding ones. W. H. W.

The Faith and Works of Christian Science. By the Author of "Confessio Medici," and published by the Macmillan Company, New York City.

This well appointed little book by the author of the charming series of essays known under the name of "Confessio Medici," is an arraignment of the philosophy and practises of Mrs. Eddy and of her followers.. One of the main characteristics of the work is fairness, for since the Christian Scientists affirm in reply to every inquiry that their entire faith and the key to their every action is to be found in "Science and Health with Key to the Scriptures," the author limits himself to quotations from that work in his criticisms of the claims of the believers, and further quotes cases of reputed cures almost entirely from the publications of the "Scientists." With convincing logic and often with much humor, Science and Health is regarded from the successive standpoints of philosophy, Christianity, nature and medicine and in all these is found woefully wanting. The accompanying sketch of Mrs. Eddy's life is taken in the main from the book published in England by Lyman Powell on "Christian Science, the Faith and the Founder," which has been found by the author to coincide in all the important points with the Milmine Articles published in McClure's in 1907.

In conclusion are cited a large number of cases quoted directly from the Christian Science publications, between April and August, 1908, with suitable comment, and also the experiences of a number of regular physicians, mostly English, in their contact with Christian Scientists before, during and after real medical treatment.

The ridicule and common sense, the logic and the notable fairness which are conspicuous throughout the book, the pitiless showing up of the inevitable selfishness and cruelty which are the logical results of a belief which strives to hide all that is sad or unpleasant, are set forth in an eminently readable style. One wonders that any could see and not be convinced, until the list of cases offered forces upon one the conviction that to those who can in all apparent sincerity believe their own written authorities ,no arguments or logic can avail. R. G. P.

Organic and Functional Nervous Diseases. A Textbook of Neurology. By M. Allen Starr, M. D., Ph. D., LL. D., Sc. D., Professor of Neurology, College of Physicians and Surgeons, New York; ex-President of the New York Neurological Society. Third edition, thoroughly revised. Octavo, 904 pages, with 300 engravings and 29 plates in colors or monochrome. Cloth, $6.00, net; leather, $7.00, net. Lea & Febiger, Philadelphia and New York, 1909.

The first edition of Starr's work was devoted exclusively to organic diseases. The masterly presentation of the subject made the addition of functional disorders in the second edition imperative. The space devoted to them however was inadequate, and this third edition brings with it a rewriting and enlargement of that part of the subject. In fact the portion of the work devoted to functional diseases is now more than doubled, comprising 180 pages.

Additions have also been made to the descriptions of organic disease, the portions devoted to beri-beri, caisson-disease and syphilis of the nervous system having been rewritten. The space devoted to paresis and to decompressive operations in disease of the brain has also been increased.

The general plan of the work fits it about equally for the uses of student and practitioner. A short introductory statement of the general structure of the nervous system is followed by a treatise on the general diagnosis of nervous diseases, including the peripheral nerves, the spinal cord and the brain. Then follow systematic descriptions of the organic, and after them of functional nervous diseases, to which is added consideration of diseases of the sympathetic system, the so-called vasomotor and

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trophic neuroses. Insanity is not included, except insofar as mental symptoms occur in connection with brain disease, and incidentally with some of the more common nervous disorders. This exclusion in a one-volume work is an advantage. The material is already so considerable, requiring 897 pages for its development, that it is doubtful whether two volumes might not answer a more convenient purpose than one, even as it is. There is no doubt that insanity, too, is so special a field as to require separate treatment and specialization.

In general grasp, thoroughness of handling and abundance of illustration the book challenges comparison with the best treatises on the subject in any language. It represents high scientific attainment, and more of personality and individual experience than is usually found in systematic works.

The book-making, in respect of type, proof-reading and other details is excellent. H. S. U.

Parenthood and Race Culture. An Outline of Eugenics. By Caleb Williams Saleeby, M. D., Ch. B., F. Z. R. Edin. Fellow of the Obstetrical Society of Edinburgh, Member of Council of the Eugenics Education Society, The Sociological Society, The National League for Physical Education and Improvement, Member of the Royal Institution, The Society for the Study of Inebriety, etc. Moffat, Yard & Company, New York, 1909. Price, $2.50 net.

In the preface of his book Dr Saleeby claims that it is a "first attempt to survey and define the whole field of eugenics." He outlines what he considers to be the scope of eugenics, insisting on its supreme importance to the future of the race. He indicates some points of its practical application; the education of our children for parenthood, as their first and supreme duty, the bringing of public opinion to regard the selection of parents through marriage as a sociological possibility and obligation; the guarding of the expectant mother from such racial poisons as alcohol, lead and syphilis; and finally the protection of the children born to us. He condemns the recent outcry against race suicide. Race murder rather, he asserts, is a disgrace of our modern civilization, and that while we are content to tolerate the death, before their fifth year, of one third of the children born to us, it is "monstrous to call for more to be similarly slain." He points out the fact that mind, rather than physical strength, is the dominant characteristic of survival value in man, and that the physical is of value only as it aids the mental. Physical perfection is indeed, the aim of the eugenist, but perfection of energy and vitality rather than muscle and brawn.

In dealing with a subject too often set aside as idealistic, and involving measures too revolutionary to be put into practise, Dr Saleeby wins attention by the temperance of his claims, and his appreciation of the difficulties in the way. While insisting on the importance of a speedy awakening to the necessity of eugenics in our national life, he expresses his views with a moderation and tolerance, that cannot fail to make his books of interest to all. M. R. W.

A Textbook on the Principles and Practice of Surgery. By George Emerson Brewer, M. D., Professor of Clinical Surgery in the College of Physicians and Surgeons, New York. Octavo, 908 pages, 415 engravings and 14 full-page plates. Cloth, $5.00 net; leather, $6.00 net. Lea & Febiger, Philadelphia and New York, 1909.

This is an excellent single volume textbook on surgery. The author has added some 200 pages to the first edition, introducing some subjects which were omitted formerly and extending others which were deemed somewhat too concise in the previous edition. The illustrations are excellent, the text good, and the whole subject-matter brought up-to-date.

The first few chapters are devoted to infections and their relation to surgery and the important points of acute and chronic infectious surgical diseases are concisely set forth. The chapter on anesthesia is an inter-

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esting and valuable one, illustrated by cuts of the best modern apparatus in use in this important branch of surgery. Operative technic receives its full share of attention and there are sufficient illustrations to illuminate clearly the points made in the text. R. H. B.

Acknowledgments.

The Practical Medicine Series. Volume VII. Pediatrics: Edited by Isaac A. Abt, M. D., with the collaboration of May Michael, M. D. Orthopedic Surgery: Edited by John Ridlon, A. M., M. D., with the collaboration of A. Steindler, M. D. Series 1909. The Year Book Publishers, Chicago, Ill. Price $1.25.

A Manual of Otology. By Gorham Bacon, A. B., M. D. With an introductory chapter, by Clarence John Blake, M. D., Professor of Otology in Harvard University. Fifth edition, revised and enlarged, with 147 illustrations and 12 plates. Lea & Febiger, New York and Philadelphia. 1909.

A Text-Book of Surgery for Students and Practitioners. By Geo. Emerson Brewer, A. M., M. D. Illustrated with 415 engravings in the text and 14 plates in colors and monochrome. Second edition, thoroughly revised and much enlarged. Lea & Febiger, New York and Philadelphia. 1909.

A Practical Treatise on Diseases of the Skin for the Use of Students and Practitioners. By James Nevins Hyde, A. M., M. D., Professor of Dermatology in Rush Medical College, Chicago; Professorial Lecturer on Diseases of the Skin, University of Chicago. Eighth and revised edition. Illustrated with 223 engravings and 58 plates in colors and monochrome. Lea & Febiger, Philadelphia and New York.

Toledo University Bulletin. Announcements 1909-1910.

Public Health and Marine-Hospital Service of the United States. Bulletins Nos. 51, 52, 53, 54 and 55.

Illinois State Board of Health. Monthly Bulletin.

Reprints by: James Moores Ball, St. Louis, Mo.; William C. Braislin, Brooklyn, N. Y.; S. J. Kopetzky, New York City; L. Webster Fox, 1304 Walnut St., Philadelphia, Pa.; James C. Wood, Cleveland, Ohio; Thomas E. Satterthwaite, New York; George M. Gould, Ithaca, N. Y.; William Seaman Bainbridge, New York; W. T. Briggs, Nashville, Tenn.; William Van Valzah Hayes and William Seaman Bainbridge, New York; and Marcel Rollet, of Blois (translated by F. Park Lewis, Buffalo, N. Y.).

Medical News.

R. Dexter has opened an office at 764 Rose Bldg.

W. E. Lower and wife are spending their wedding-trip in Europe.

H. J. Gerstenberger will leave this month to visit the European clinics.

E. L. Lowthian has moved his office from Library Ave. to the Bank Building, 3841 West 25th St., corner of Denison Ave.

The St. Alexis Hospital Alumni Association met Thursday, October 7, 1909. The program was as follows: 1 Sinusitis, J. E. Cogan. 2 Treatment of Uterine Displacements, B. B. Handmacher. 3 Tonsillectomy, O. M. Shirey. 4 Case reports by E. P. Monahan, J. J. Dunn and C. E. Ward.

The Charity Hospital Medical Society met Wednesday, October 13, 1909. The program was as follows: 1. Case of Tetanus with Recovery, J. D. Knox. 2. Case of Splenomyelogenous Leukemia Treated by x-ray, A. G. Schlink and G. F. Thomas. 3. Tuberculous Meningitis, A. N. Dawson. 4. Pneumonia Following Peritonsillar Abscess, H. A. Berkes.

The Second Annual Banquet of Saint Luke's Hospital was held in Euclid Avenue Methodist Church parlors, Tuesday, October 19, 1909. In the past 14 months 2028 patients have been treated at St. Luke's, of

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which 530 were charity, part pay or dispensary cases, and 719 did not pay the entire cost of treatment. There were 75 babies born in the hospital during this time.

The Lakeside Hospital Medical Society held the forty-first meeting on Wednesday, September 29, 1909. The program was as follows: 1. Report of a Case of Traumatic Hematomyelia, I. H. Fuhs; 2. Report of a Case of Intestinal Laceratiou, and Presentation of a Case of Sarcoma of the Femur, H. W. Masonheimer; 3. Presentation of a Case of Instrumental Laceration of the Urethra, H. L. Rockwood; 4. Presentation of a Case of Purpura Hemorrhagica, H. N. Cole; 5. Report of a Case of Abdominal Tumor, J. R. Beiter; 6. Report of a Case of Ascaris Lumbricoides with Unusual Symptoms, R. Dexter; 7. Presentation of Pathological Specimens; (a) Perforative Appendicitis with Large Fecal Stone in Lumen of Appendix, (b) Internal Traumatic Rupture of Upper Lobe of Left Lung, (c) Organs from a Case of General Miliary Tuberculosis, and (d) Brain Abscess in Left Temporosphenoidal Lobe following Mastoiditis, R. Dexter.

Canfield's Certified Milk of Cleveland obtained the gold medal at a recent contest held at the Milwaukee Milk Show.

Sidney D. Foster and Geo. L. Chapman, Toledo, have moved to the Nicholas Building. Dr Foster will practise surgery limited to children, and Dr Chapman will limit his work to the medical side of children's diseases.

The Healthier City Committee, of Toledo, during the latter part of September, found formaldehyde in certain samples of milk obtained from the distributing wagons of a dairy operating in that city, milk in which the city chemist failed to find formaldehyde; whereupon the administration became indignant and declared that the Healthier City Committee had no business meddling in the affairs of the Board of Health.

The Federated Charities of Toledo met September 27th. The following program was rendered: 1 The Relation of the Board of Health to the Milk Supply, George W. Tonson, Director of Public Service. 2 Commercial Milk from the Distributor's Standpoint, H. A. Page of the Ohio Dairy Company. 3 Milk Analysis, Clarence R. Rex, chemist.

W. W. Alderdice, of Toledo, left October 2 for New York to attend the meeting of the American Association of Otology and Laryngology.

W. J. Stone, of Toledo, has been appointed local examiner for the State Tuberculosis Hospital.

In Toledo, there is talk of a building to be constructed for the physicians, and to be occupied by them only, the Academy of Medicine to have censorship over the occupants.

The Physicians of Toledo, on October 18, entertained Dr Cook, the famous explorer, who lectured in Toledo on that date, with an informal midnight lunch at the Business Men's Club.

The Toledo Physicians held a "clinic day" October 21, 1909. The clinics were held at the various hospitals, and a very interesting program was presented. The physicians from the surrounding counties were invited. A similar program was carried out very successfully last spring. This plan is one that Cleveland physicians and surgeons would do well to copy since it would afford outside practitoners an opportunity to see a considerable amount of operative and other clinical work in a short time.

Meetings of the Academy of Medicine of Toledo and Lucas County:

The Surgical Section held its first meeting of the season on September 24, at which the following program was rendered: 1 Hysterectomy for Carcinoma of the Uterus by Means of Electro-Cautery, William J. Gillette. 2 Radical Operation for Carcinoma of Uterus, J. H. Jacobson.

The general meeting of the Academy met October 1, 1909. A. C. Croftan of Chicago gave an address upon the Uric Acid Diathesis.

The Pathological Section met October 8. The program was as follows: 1 Carcinoma of the Cecum (case report), F. M. Freeman. 2 Tuberculosis of the Kidney (case report), John Keller. 3 Medical Practise and Customs in the Philippines, C. E. Yeagle.

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The Medical Section met October 15. The following program was given: 1 Cardiac Dilation and Cardio-Sclerosis, Frank Winders, Columbus. 2 Cardiac Arythmia, W. A. Dickey.

The Ottawa County Medical Society entertained with a fish dinner at Port Clinton, Ohio, on the evening of October 19. G. W. Crile of Cleveland was the guest of honor and read a paper upon Operations upon Handicapped Patients.

The Ashtabula County Medical Society met Tuesday, October 5, 1909. The program was as follows: 1 Tubo-Ovarian Cysts, W. H. Leet. 2 Informal Talks by B. M. Tower and D. G. Palmer.

The Muskingum County Medical Society held its 181st regular meeting October 19. G. Warburton showed a case of cretinism in a 16 months' child. W. C. Walters presented a paper on the Diagnosis and Treatment of Inevitable Abortion. E. C. Brush reported an epidemic of diphtheria in the John McIntyre Children's Home: there were 27 cases during March, April and May with 27 recoveries, due to prompt and heroic doses of antitoxin.

H. R. Geyer of Zanesville has just returned from a three week's attendance at clinics in Philadelphia.

R. B. Bainter of Zanesville is attending clinics at Lakeside Hospital, Cleveland, and at the Mayos' Hospital at Rochester, Minn.

Lieut. Col. E. C. Brush of Zanesville Medical Corps O. N. G., has just received his appointment from Washington as First Lieutenant in the Medical Reserve Corps, U. S. A.

The Erie County Medical Society met October 27, 1909. The program was as follows: 1 Diagnosis and Treatment of Dislocations of the Larger Joints, C. H. Merz. 2 Treatment of Tuberculous Joints, J. F. Bausch. 3 What Should the Public Do to Provide Better Hygienic Conditions in the Public Schools, W. Graefe.

Margaret Golden of Mansfield has been ill for the past five weeks with typhoid.

T. H. Foster of Mansfield has recovered from a severe attack of appendicitis.

J. H. Nichols of Mansfield has returned from a two weeks' vacation in the west.

Fire at Alliance City Hospital. A fire which might have resulted most seriously had it not been for the valiant work of the nurses, badly damaged the hospital on October 10, 1909. The flames started in the basement and went up the clothes-chute to the roof. The basement and third floor wre badly burned before the fire was discovered. There were 15 patients who were hurriedly removed to nearby private residences. The loss amounts to about $2500.00. A vacant residence is being fitted up as a temporary hospital until repairs can be made.

The Association of Assistant Physicians of the Ohio State Hospitals held the fourteenth semi-annual meeting at the Dayton State Hospital, Dayton, October 6 and 7, 1909. The following program was presented: First session, October 6: 1 Address, A. F. Shephard, Dayton. 2 The Wasserman Reaction, G. A. Rowland, Columbus; discussion opened by J. C. George and J. L. Battle. 3 Studies on the Clinical Diagnosis in General Paralysis of the Insane, E. McCampbell; discussion opened by G. B. Williams and Mary E. Cadwallader. Second session, October 7: 1 Some Hysterical Manifestations with Report of Cases, Mary E. Cadwallader, Dayton; discussion opened by Rose E. Timms and G. A. Rowland. 2 Tuberculars in State Hospitals, Mary L. Austin, Gallipolis; discussion opened by W. B. Tracey and Orlando Tatgi. 3 Tuberculin and Tuberculin Therapy, J. F. Connefee, Columbus; discussion opened by C. E. Holzer and H. H. Dorr. The next meeting will be held at the Cleveland State Hospital.

The President of the American Gynecological Society has appointed a committee to report at the next annual meeting in Washington, on the present status of obstetrical teaching in Europe and America, and to recommend improvements in the scope and character of the teaching of obstetrics in America. The committee consists of the professors of

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obstetrics in Columbia University, University of Pennsylvania, Harvard, Jefferson Medical College, John Hopkins University, Cornell University and the University of Chicago. Communications from anyone interested in the subject will be gladly received by the chairman of the committee, Dr B. C. Hirst, 1821 Spruce St., Philadelphia, Pa.

The United States Civil Service Commission announces an examination on November 24, 1909, to secure eligibles from which to make certification to fill a vacancy in the position of medical supervisor in the Indian field service at $250 a month and expenses, and vacancies requiring similar qualifications as they may occur in that service, unless it shall be decided in the interests of the service to fill the vacancy by promition, reinstatement, or transfer. Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the local board of examiners for application form 1312.

Army Medical Corps Examinations at Washington, Chicago and San Francisco. The surgeon-general of the army announces that the war department has appointed permanent boards for the preliminary examination of applicants for appointment in the medical corps of the army to meet at Washington, D. C., Fort Sheridan (near Chicago), Illinois, and San Francisco, California, in addition to the usual preliminary examination boards that are assembled at various army posts throughout the United States from time to time. The permanent boards will hold sessions on the second Monday of each month.

A limited number of successful candidates will be appointed first lieutenants in the medical reserve corps (salary $2,000 per annum) and assigned to army posts until the next session of the Army Medical School, when they will be ordered to attend the school as "student candidates."

Applicants must be citizens of the United States, between 22 and 30 years of age, graduates of reputable medical schools, of good moral character and habits, and shall have had a year's hospital training after graduation, or its equivalent.

Full information concerning the examination can be procured upon application to the Surgeon-General, U. S. Army, Washington, D. C.

Deaths.

J. T. Martain, Sandusky, Ohio, died August 16, aged 65.

J. Walker Neil, Delaware, Ohio, died August 4, aged 74.

H. M. Hamilton, Columbus, Ohio, died September 2, aged 41.

W. Scott, Senacaville, Ohio, died September 5, aged 69.

Orrin Hayden Evans, Jackson, Ohio, died September 20, aged 35.

Fenton G. Helms, Uhrichsville, Ohio, died September 24, aged 59.

Charles Henry Springer, Cleveland, Ohio, died September 17, aged 48.

Otto Frankenberg, Columbus, Ohio, died September 29, aged 63.

Isaac M. Mulholland, Toledo, Ohio, died June 21, aged 85.

James McClure, Marietta, Ohio, died October 6, aged 74.

Irvin C. Wright, Logan, Ohio, died October 7, aged 64.

Xenophon Christmas Scott, Western Reserve University, Cleveland, 1867; College of Physicians and Surgeons, New York City, 1869; a veteran of the Civil War; for many years a member of the American Medical Association; formerly president of the Mississippi Valley Medical Association; ophthalmic and aural surgeon to the German Hospital, Cleveland; and professor of ophthalmology, otology and laryngology in the Western Reserve University; founder and surgeon-in-chief of the Cleveland Eye, Ear and Throat Institute; in charge of a military hospital in Heidelberg during the Franco-German war; a well-known specialist on diseases of the eye; died at his home in Cleveland, September 30, from cerebral hemorrhage, aged 66.

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The Cleveland Medical Journal

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Some Activities of the Public Health Service in Relation to Scientific Investigations.

By J. W. KERR, M. D., U. S. Public Health and Marine Hospital Service, Washington, D. C.

It gives me great pleasure to return to this city for the purpose of meeting with your Academy. It was here that my medical course was taken, and since that time it has been a constant source of pride to be reminded that this city is a recognized center of medical learning, and that my Alma Mater ranks among the first of the institutions of its kind in America.

Practically ever since graduation my time has been spent in the Public Health Service, a life that affords a rather large opportunity of association with the medical profession in different parts of the country. Such association on my part has served to emphasize the high place that the profession of this city occupies, and it is a pleasure to make acknowledgment here to those of its members to whom I am indebted for instruction and counsel.

Life in the Public Health Service also affords opportunity for a somewhat varied experience in the field of preventive medicine. This experience on my part has included hospital and quarantine practise, medical inspection of immigrants, epidemic work, and my present administrative duties in connection with scientific investigations of matters pertaining to the public health.

Scientific Research, a Function of the Federal Government.

Scientific research is a well defined function of the Federal Government, and this particularly applies to investigations of the

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Read before the Academy of Medicine of Cleveland, November 20, 1909.

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infectious and contagious diseases, the conditions favoring their spread and the measures necessary for their prevention. Moreover, governmental research in matters pertaining to the public health has both protective and developmental value, and is entirely in conformity with the ideals of democratic government.

Police powers with respect to sanitation within the States have been reserved to the States themselves, but the Federal Government through the exercise of its legitimate functions can aid local authorities and through them, the people, to attain the degree of sanitary excellence which is to be expected of them. In no better way can this be done than by the advancement of sanitary information through research, and the dissemination of the knowledge thus acquired.

Much has already been accomplished through investigations, but it is safe to say that at no previous time has our government shown greater activity in this field than at present, nor has the public ever before taken greater interest in the future of such work. It is intended, therefore, in response to your invitation to outline briefly some of these activities with the view of enlisting your interest in them as well as the organization that is carrying them on.

The Public Health Service a Product of Evolution.

Every great national governmental organization is the product of evolution, and this is true of the Public Health Service as it now exists. Organized originally to provide care and treatment for sick and injured sailors of the merchant marine, it has had a steady growth, having from time to time been charged with additional duties and granted greater powers.

The additional duties that have been imposed include administration of the national quarantine laws, the medical inspection of arriving aliens, the supervision over the manufacture and sale in interstate traffic of viruses, serums, toxins and analogous products, the collection of morbidity and mortality statistics, the studies of climate in relation to health and disease, and the investigation of infectious and contagious diseases and matters pertaining to the public health.

Inauguration of Systematic Investigations Coincident with Organization of the Hygienic Laboratory.

The activities of the Service in the field of scientific research had their definite origin in the establishment of the Hygienic

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Laboratory at the Marine Hospital, New York, in 1887, although independent studies of yellow fever and other diseases had previously been made. Their inception, therefore, was practically coincident with the beginning growth of the science of bacteriology in this country.

It soon became apparent that the foundations of such work should be laid at the seat of government and the laboratory was accordingly moved to Washington in 1891.

There is record of substantial progress in the laboratory until 1902, when by Act of Congress it was enlarged and organized into four divisions of Pathology and Bacteriology, Medical Zoology, Pharmacology, and Chemistry. At the same time there was provided an advisory board composed of four officers of the government and five other members eminent in their respective fields and connected with private laboratories of like character. By this means, the Service is brought in touch with the great scientific institutions of the country and from time to time receives advice as to the investigations to be undertaken and the methods of making them. There has also been provided a commodious and splendidly equipped laboratory building in which at the present time there are on duty 54 scientific workers and attendants, these workers being selected because of their special fitness for the work required of them.

For a number of years it has been the practise to detail officers of the corps for duty in the Hygienic Laboratory for instruction, and a definite course of study has been prescribed for the purpose of better fitting them for the discharge of public health work. It is expected that the facilities of the laboratory will eventually be utilized in the School of Hygiene which Congress has been asked to establish, and which will be open also to State and local health officers throughout the country.

The rapid growth and important functions performed by the Hygienic Laboratory, and the necessity of special research in certain localities emphasized the importance of establishing other centers of scientific investigation, and this was facilitated by the scientific training afforded the Service officers in the parent institution.

Whenever outbreaks of the great epidemic diseases have occurred there has been the necessity of establishing a research laboratory in the locality infected: Such, for instance, was the case during the recent outbreak of plague on the Pacific Coast and the epidemic of yellow fever in the Southern States some years ago.

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In such laboratories, attention is concentrated entirely upon the diagnosis of the disease in hand and studies to determine its origin, and the methods of its transmission and prevention.

The Federal Plague Laboratory Organized in 1900.

The origin of plague on the Pacific Coast in 1900, the fight to establish its identity, and the measures ultimately taken for its suppression is an interesting chapter in the history of sanitation in the United States. The successful results accomplished must be attributed, in part at least, to work done in the Federal Plague Laboratory which was established in San Francisco at the time.

Plague, as you are aware, is primarily a disease of rodents, and it was the laboratory studies that determined daily the extent of infection among these animals. Upon the second appearance of plague in San Francisco in 1907, the same agency was again utilized to determine the extent of the infection.

This was purely routine duty, however, and could be performed by trained assistants, whereas many problems relating to the epidemiology of the disease remained to be solved and have since claimed the attention of the Director of the Laboratory and a portion of his staff.

Following the discovery that California ground squirrels were infected with plague, a branch of the Plague Laboratory was established in the region of their habitat in order to extend the scientific investigations into this fertile but hitherto unrecognized field.

The foundations of the Plague Laboratory were not laid as for a permanent institution, as the necessity for its continuance will cease when plague shall have been eradicated among animals as it has been among human beings. On the contrary, the facilities and staff of the laboratory can be enlarged or diminished as occasion may demand, and, by reason of the organization of which it is a part, such fluctuation is only limited by the existing number of the corps and size of the appropriation that Congress has set aside for the prevention of the epidemic diseases.

The Leprosy Investigation Station Authorized in 1905.

Another institution of scientific research which will be more or less permanent is the Leprosy Investigation Station.

In 1899, Congress provided for a commission to study leprosy as it existed in the United States. These studies were vigorously prosecuted by a board of commissioned officers, and a report made

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in 1902, which showed that provision should be made for the national care of lepers, and above all that the disease should be the subject of continuous investigation until the method of transmission shall have been definitely determined and an improved method of treatment evolved.

Congress accordingly authorized the investigation March 3, 1905, and provided generous appropriations with which to carry it on.

This station has been established on the Island of Molokai in close proximity to the leper colony. It consists of a hospital and laboratory on Molokai, and a branch laboratory at the receiving station in Honolulu, and its staff consists of 24 scientific workers and attendants.

Certain Quarantine Stations and Hospitals Utilized for Purposes of Investigation.

In addition to the laboratories devoted solely to scientific research, certain of the quarantine stations are utilized for purposes of investigation. The primary object of a quarantine station is to prevent the introduction of contagious and infectious diseases. It, therefore, provides an excellent opportunity of practically testing the value of disinfectants.

Since yellow fever is spread by means of mosquitoes, and plague by means of rodents, it also offers opportunity of testing the culicidal properties of gases and their value for purposes of "deratization".

Through this agency has been determined the most practical methods of using formalin, sulphur dioxid, pyrethrum, and other preparations, and the results have been reduced to formulae as represented in the quarantine regulations.

What has been said of the quarantine stations also applies to certain of the hospitals of the Service. Its beneficiaries come from practically every part of the earth, and consequently bring diseases peculiar to the localities from which they come. As an example of this may be mentioned studies of trachoma and favus at Ellis Island, and intestinal parasites at San Francisco. At the latter port, during 1909, Long has studied 114 patients harboring amebae, as well as other patients harboring intestinal parasites which are not commonly found in this country.

Such studies have a twofold value; they contribute to the knowledge of the officers from the clinical standpoint, but of greater importance, they serve in some measure as an index of the

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importation of exotic diseases and the dangers to which these diseases give rise within the country.

The fields for investigation are extensive, and it is impracticable for the Federal Government to attempt to cover them all. The investigations must therefore be undertaken primarily with the view to preventing the spread of epidemic diseases. For this reason, it is necessary that the manifold efforts be directed, and that the work be correlated, in order that duplication shall not occur. In other words, a central office became necessary that would keep in touch with the scientific work, relieve the workers of certain administrative details, and render available to those interested the sanitary information obtained. This need was met by the creation of a Bureau Division of Scientific Research.

Bureau Division of Scientific Research Established.

When in 1902 Congress reorganized the Marine Hospital Service into a Bureau of Public Health, there was accordingly established a Bureau Division of Scientific Research, which serves as the connecting link between the administrative office and various scientific laboratories. This Division, over which it has been my privilege, under the direction of the Surgeon-General, to preside for the past four years, has an efficient though small staff with which to perform the duties required of it.

Here is being collected a public health library, including public health documents, laws and records issued by State and local authorities throughout the country. In addition, over 85 weekly and monthly medical journals are reviewed and indexed insofar as relates to the public health, and files are kept containing information relating to preventable diseases, predatory animals and insects, water supplies and sewage, disposal of dead bodies and other subjects relating to sanitation.

The Division is directly responsible under the Surgeon-General for the expenditure of all appropriations of the Service made for scientific research, and hence disposes of all correspondence in relation thereto. The Assistant Surgeon-General in charge, by reason of his position, is secretary of the Yellow Fever Institute, which was organized to promote scientific investigation of yellow fever in different parts of the world. He assists the Surgeon-General by acting as secretary during conferences of State and Territorial health authorities with the Public Health Service; also during conferences with the Advisory Board of the Hygienic Laboratory. The Division also makes studies of sanitary subjects,

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compiles facts for publication, and handles all scientific reports in the Bureau until published and ready for distribution.

Finally, it is through the Division of Scientific Research that the law regulating the manufacture and sale of viruses, serums, and toxins is administered. This law, which was passed in 1902, requires that all such products sold in interstate traffic shall be from establishments licensed by the Treasury Department, and that licenses shall be issued only after inspection and examination of their products in the Hygienic Laboratory as to potency and purity.

It is perhaps unnecessary to refer to the good effects of this law, as doubtless they are already known to most of you. It is pertinent to state, however, that one of the beneficent results has been the adoption of standards for antidiphtheric serum and antitetanic serum, and practitioners can rest assured that these products from licensed establishments contain at least the number of units labelled. They can also feel that close watch is being kept on vaccine virus, a large amount of this product having been withdrawn from the market at one time by order of the Government because its purity was in doubt.

In order to insure the potency of antidiphtheric and antitetanic serum, the standard units for these products made in the Hygienic Laboratory are distributed bimonthly to licensed establishments, and the serums offered for sale must conform to these standards. In order to insure purity, samples of all serums are purchased on the open market and examined from time to time. In addition, every foreign importation of serums, viruses, or toxins is required to be accompanied by an excess number of packages so as to provide necessary samples for examination, without which the shipment cannot be admitted to entry.

Having outlined the organization devoted to scientific research, the question follows, What has been accomplished, and what investigations are now in progress?

Some Results Accomplished.

It is evident that scientific investigations, even though financed by the government, must in the end react favorably upon the life and aims of the people, if they are to be continued.

The results of certain studies already made may therefore, in a measure, be estimated from the standpoint of their practical application in preventive medicine.

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Through Stiles' investigations of hookworm disease, *Uncinaria americana* has been identified and shown to be responsible for the physical and mental impairment of certain classes of the population where the disease is endemic. As a result, a campaign, financed by private philanthropy, has now begun, and there is every reason to believe that hookworm disease will in time be effecutally controlled.

Through studies of anaphylaxis made in the Hygienic Laboratory, greater precision has been attained in the testing of therapeutic serums, and some light has been thrown on the cause of sudden deaths following the injection of such serums.

The discovery of plague among ground squirrels in California has resulted in an extensive campaign for their extermination; over 34,000 of these animals having been destroyed within a period of five months. It has also permitted studies of the susceptibility of these animals to plague infection and experiments regarding the transmission of the disease through the agency of fleas.

When in 1905 the British Plague Commission at last proved that the species of flea known as *Pulex cheopis* was the intermediary agent in the transmission of plague, it was determined to ascertain whether this particuler flea was to be found in our country. Upon consulting different works on entomology, it was astonishing and confusing to learn the many different species of this insect, but practically no light was thrown upon the question that had arisen.

It has since been found in San Francisco and elsewhere that other species of fleas may play the role of plague carrier, but in the meantime, reports and specimens had been received from the officers in many parts of the country which proved conclusively that *Pulex cheopis* was widely distributed. To show the extent of this work it may be of interest to state that in San Francisco alone more than 19,000 fleas were captured and identified by the officers there.

In the Hygienic Laboratory, many investigations have been made, and the results of the more important ones are contained in the 58 bulletins that have already been published. Many of these bulletins are authorities on the subjects of which they treat, and very well represent the scope and importance of the scientific work done in that institution.

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Some Investigations Now in Progress.

Several problems of great interest have recently been the subjects of earnest study. The origin and prevalence of typhoid fever in the District of Columbia is one of them. This investigation, which was begun in 1906, has been continued ever since by a board of officers, and has included careful epidemiological studies of approximately 3,000 cases of typhoid fever, an intensive study of 32 city blocks, and examinations in the season of 1908 of the stools and urine of 1,093 persons to determine whether or not they were bacillus carriers. Water, milk, fruits, vegetables, shell fish and flies have also been carefully studied to determine their influence in the transmission of disease.

For a number of years, typhoid fever was regarded almost solely as a water-borne disease, but the pendulum has swung the other way, and careful studies of the Potomac River water have therefore been necessary to ascertain its exact relation to the prevalence of the disease in the District of Columbia. As a result of the investigations thus far, it has been shown that approximately 50% of the cases studied were due to infected milk, contact, and importation. During the past summer, studies have been made of the blood, urine and feces of a series of about 100 cases reported as typhoid fever, to determine the percentage of correct diagnoses, and the stools and urine of over 375 persons who have had typhoid fever within five years have been examined in order to determine what proportion of recovered cases act as bacillus carriers in the transmission of disease. These examinations are expected to throw additional light on this phase of the problem in Washington, and sufficient data have been secured to warrant the statement that bacillus carriers may be a frequent source of typhoid infection. Six bacillus carriers have been discovered among 379 persons thus far examined, which would indicate that Washington is an endemic center of typhoid fever

While bacillus carriers are undoubtedly a constant menace, the important conclusion has been reached as a result of the studies that if suspicious milk supplies were rendered safe through pasteurization and proper care exercised at the bedside with respect to typhoid fever patients, the disease would in a large measure cease to be a national health problem as it is today.

Another problem that promises to become of material consequence is the occurrence of pellagra in the United States and its increasing prevalence since 1907. In Europe, this disease has

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long prevailed, and in certain countries has been the subject of earnest study.

When the occurrence of pellagra in Alabama was reported in 1907, an officer of the Service who had had extensive experience in Italy, invited attention to the probable increasing importance of the subject in relation to the public health. In consequence, the Surgeon-General immediately called for reports as to the prevalence of the disease, and later inaugurated investigations which have been continued ever since. It has been definitely determined that there are over 1,200 cases of pellagra in the United States which are mostly in insane asylums, and it has been conservatively estimated that there are from 5,000 to 10,000 cases existing today throughout the country. An officer of the Service has investigated cases in six States, and there have been published 23,000 copies of bulletins and public health papers bearing on the disease. The investigations thus far made have confirmed the reported high mortality of the disease in this country and its apparently acute type as compared with cases in Europe.

The progress of events in relation to the occurrence of pellagra indicated that the investigations begun should be greatly enlarged, and a scientific commission was recently appointed by the Surgeon-General which should concentrate its best efforts on various phases of the situation. One of the most important of these is the discovery of the cause of the disease.

There is a very universal and profound conviction that pellagra is in some indefinite way connected with the use of diseased corn, but the exact nature of this relationship awaits final solution.

While epidemiological, pathological and clinical investigations have been undertaken in order to throw additional light on the disease, the various hypotheses regarding its etiology deserve first attention, and are being made the subject of careful studies.

Perhaps the most suggestive work in relation to a specific infection in pellagra is that of Ceni, who believes that the disease is due to a specific infection by one of two moulds, *Aspergillus fumigatus* and *A. flavescens*. He believes that these moulds gain entrance, with food, to the intestinal tract, pass through the intestinal wall in the spore state, and localize in the lungs, pleurae, pericardium, or pia mater. When localized, they are thought by him to set up a true diffuse, inflammatory process, and elaborate virulent toxins which gives rise to a characteristic general intoxi-

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cation. Ceni has found several varieties of *Aspergilli* and *Penicillia* to possess pathogenic power and to be capable of producing characteristic toxins, but only *Aspergillus fumigatus* and *A. flavescens* seem to have the power of infecting the human organism. His hypothesis is a most ingenious one, is supported by careful experimental work, and therefore points the way to an important line of study.

As yet the Service investigations have been limited, but they are being continued and reports of results will appear later in printed form.

The experience of the Service in the prevention and control of plague has led to careful investigations of rodents in relation to the public health. Ten years ago such studies would have been of interest only to the biologist, but today, knowledge of the pathological conditions found in these animals is necessary for the early detection of plague outbreaks. The reports of these investigations, which are now in press, include descriptions of a leprosy-like disease of rats as observed in California; the bacterial and organic diseases of rats; the parasites of rats, including *Trichina spiralis;* the methods necessary to prevent their transmitting diseases, and the most efficient agents for their destruction.

The discovery of a bacterial virus that will cause destructive epidemics among rodents would be of the greatest service, but the large number of laboratory and practical experiments made demonstrate that the much advertised viruses in the market are practically worthless, and some of them have been shown to be fraudulent.

Time will permit of detailed reference to only one other phase of the scientific work now in progress and which is of peculiar interest to the medical profession throughout the country. I refer to pharmacological researches in relation to revision of the Pharmacopoeia.

Through the Division of Pharmacology of the Hygienic Laboratory the Service has been engaged in making investigations of new and non-official remedies, and in this work has cooperated with the Council on Pharmacy and Chemistry of the American Medical Association. These studies and the work of standardizing diphtheria antitoxin, which standard was incorporated in the Eighth Decennial Revision of the Pharmacopoeia, have an important bearing on the coming revision of that important publication.

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In response to requests made upon it, there has been compiled and published by the Service a series of Digests of Comments on the Pharmacopoeia dealing with literature bearing on the subject and representing the period from the issue of the Pharmacopoeia until January 1, 1907. This work is being continued and will comprise abstracts of comments on the various therapeutic remedies in order to determine whether they are of sufficient merit to justify official recognition.

There is necessity for careful studies of the strength and value of the various therapeutic remedies in common use. Preparations of the organo-therapeutic products, digitalis, and similar drugs are being studied with the view to their standardization.

On account of the necessity for a uniform method of determining the physical constants of pharmacopoeial preparations, special studies are being made, and these include determinations of boiling points, melting points, and solubilities.

As previously stated, a standard unit for measuring the strength of tetanus antitoxin has recently been established by the Department, and in consequence tetanus antitoxin should be recognized in the coming revision of the pharmacopoeia.

Of particular interest to the Public Health Service is the question of the efficiency of disinfectants, and in no field of commercial activity related to medicine are greater frauds being practised. This is due in part to the fact that there is no very satisfactory method of standardizing them, and in part to the popular belief that to be reliable, a disinfectant must be a foul smelling and nasty mess. Hundreds of these preparations have been examined in the Hygienic Laboratory, and it would seem that their actual use should alone have condemned many of them as worthless without such laboratory demonstrations. Like patent medicines, they are subject to no legal restrictions, and if the worthlessness of one is exposed, a half dozen may be concocted over night to take its place.

It has seemed advisable, therefore, to investigate the disinfectants set forth in the various pharmacopoeias of the world and attempt to establish standards in order that in future the medical profession may be provided with trustworthy information upon this important class of preparations used in preventive medicine.

It would be a pleasure to refer in detail to the Service investigations of leprosy, which include a census of the disease in the United States, Hawaii and the Philippines; a study of several hundred cases to determine the utility of nasal examination in

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the early diagnosis of the disease, and the treatment of cases with nastin, chaulmoogra oil and other preparations, but the results of some of them are set forth in bulletins already published to which I must refer you.

The investigations of typhoid fever, pellagra, and pharmacopoeial preparations have been mentioned in detail as they are of national consequence, and of special interest to the medical profession.

Correlation on the part of the medical profession and national, State, and municipal health authorities is necessary for the control of typhoid fever, the elucidation of the problems of pellagra, and the proper development of the Pharmacopoeia. This is especially true with respect to the development of the Pharmacopoeia, since through recent legislation it has become the national standard, and not only powerful financial interests but the maintenance of the public health are involved. In other words, the medicaments to be incorporated therein must receive careful consideration. The medical profession through its official delegates should exert its influence in order that public health necessities shall not be subserved to commercial interests, and in order that the pharmacopoeia shall fulfil the purposes for which it was intended.

Tests of Insanity in the Civil Court.

By BENJAMIN A. GAGE, LL. B., Cleveland.

The limitation of this discussion to the precise topic assigned, namely, "The *Tests* of Insanity in the Civil Courts," in my judgment would confine us to the examination of a purely medical subject. It is considered the intention to view the matter broadly and without detail, and the effort will be to disclose what is deemed "insanity" in the civil courts, measured by rule of law.

In the endeavor to express a state of mind, the terms "insanity," "lunacy," "non compos mentis" and "of unsound mind" are frequently used convertibly in the language of the law, and the general term "insane person" has been held to embrace those affected by one or more of various forms of mental incapacity, among them being "idiocy," "imbecility," "senile dementia," "insane delusions" and "mania," whether upon one or more subjects, none of these terms requiring definition or explanation here.

Read before the Medicolegal Section of the Academy of Medicine of Cleveland, October 29, 1909.

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An exhaustive view of the subject within reasonable limits of time and space is not possible, and it is preferred to discuss the question from the viewpoint of the Ohio cases in which insanity has been involved, either as a foundation for affirmative relief or as a defense to the enforcement of a remedy. The matter may be treated under the four following heads:

1. How is insanity involved in civil courts?
2. Methods of determining.
3. Tests in various cases.
4. Suggestions.

It immediately becomes profitable to ascertain the classes of cases in which it is necessary or important to determine the state of mind of a person involved at a given time.

Enumeration of all of these cases is not necessary, but I have grouped them into four general, descriptive classes, and the endeavor will be to explain and illustrate briefly how an inquiry concerning insanity may be important in each, avoiding, so far as possible, the use of technical, legal terms. Those classes are:

(a) Cases involving contracts.
(b) Cases involving torts.
(c) Cases involving wills.
(d) Habeas corpus proceedings.

1—How is Insanity Involved in Civil Courts?

(a) *Cases involving contracts:*

Under this heading are included all causes involving deeds, leases, conveyances, sales, partnership agreements, contracts of marriage, bills and notes, and in fact all agreements to do or not to do specific things.

A contract, written or oral, of necessity, involves two or more parties, and it is a requirement of the law that voluntary and intelligent assent to its terms and conditions be given by each of such parties. Hence, if either party at the time the agreement was entered into, was of unsound mind or insane in a degree recognized by the law, as hereinafter defined, such insanity may constitute the foundation of an action by that party for affirmative relief, such as rescission or annulment of the agreement; or it may serve as a defense against its enforcement, subject to various rules of law, which it is needless to discuss here.

To illustrate: Marriage, in addition to being a *status,* is deemed to involve a civil contract requiring assent of the parties. Unlike other contracts, the matrimonial agreement can not be

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rescinded or avoided at the will of both parties, but a severing of the ties requires the intervention of a court of competent jurisdiction. Insanity at the time of marriage or occurring subsequently thereto is not enumerated in our statutes as a ground of *divorce;* yet courts will *annul* a marriage, one party to which was insane at the time it was contracted, if such insanity at that time is established by proper and satisfactory evidence, on the theory that no intelligent and voluntary assent to the contract was given.

So, too, insanity may be pleaded, as has been suggested heretofore, as a defense against the enforcement of some remedy permissible against the sane, as in an action to enforce specific performance of an agreement to convey real estate. In such case, if it be proved that the defendant at the time of the execution of the agreement was insane, a decree of specific performance will be refused. The principles underlying these two illustrations are uniformly applied in all actions upon contracts in which the question of the sanity of the plaintiff or the defendant is material.

(b) *Cases involving torts:*

It is exceedingly difficult to convey to the lay mind a correct and adequate idea of the scope of the word "tort." Text writers have attempted, without avail, to formulate a comprehensive and lucid definition. Bigelow, an authority upon the subject, says a tort is "a breach of duty established by municipal law, for which a suit for damages can be maintained," but adds, "Indeed no definition, helped out however much by explanation, can convey an adequate notion of the meaning of the word." It is more easily illustrated than defined, and an enumeration of several specific torts may produce sufficient understanding of the meaning of the term, to comprehend the applicability of what follows.

Slander, libel, assault, false imprisonment, trespass upon property and conversion of the property of others, are all torts. Difficulty in comprehending the precise nature of a tort is enhanced because of the fact that a tort may also be a breach of contract, or a crime. Murder and theft are torts and also crimes, because they are offences against the laws of the State, and yet in the civil courts the criminal aspect of the acts claimed to be tortious is not given consideration.

The authorities have divided all torts into three general classes, viz.:

(1) Acts which are unlawful regardless of the intent with which they are committed.

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(2) Acts lawful in themselves becoming tortious or wrongful only when accomplished by wrongful means or accompanied by evil intent or malice.

(3) Acts constituting negligence, which may be defined broadly to be the failure to do those things required of an ordinarily intelligent person under similar circumstances. Such acts may be of commission or omission.

It is extremely important to keep this classification of tortious acts in mind, as for all torts *which do not involve intent or wrongful means or malice* as an ingredient, an insane person is responsible in damages in a civil action to the same extent as one of perfectly sound mind.

To illustrate: If a lunatic destroys property, he is responsible in damages for the value thereof, regardless of the fact that he was not capable of having any evil intent, and his insanity would be no defense. If he were prosecuted criminally, however, for malicious destruction of property, malicious intent would be a necessary ingredient of the offence and his insanity would be a complete defense thereto.

If follows that for those torts in which malice or wrongful intent *is* a specific ingredient, there is no civil responsibility upon a person insane at the time of their commission.

There is not perfect uniformity of ruling as to the responsibility of mentally incapacitated persons for negligence, but it has been asserted that "*insane persons* and other incompetents are responsible for damages resulting from their tortious negligence." To discuss the various doctrines of law as to liability for negligence would unduly extend the length of this paper without serving any useful purpose.

The rule as to liability for tort may be summarized as follows: "In a civil action for an injury done to person or property, intent is generally immaterial, and the rule is that an insane person is as liable for his torts as a sane person, except for those torts in which malice, and hence intention, is a necessary ingredient." Insanity, caused or induced by traumatism, may be considered also as an element of damages in a civil action to recover for personal injury to the complainant.

(c) *Cases involving wills:*

The statutes of Ohio provide that persons "of sound mind and memory," and under no restraint, may make testamentary disposition of their property, and contain requirements concerning the formal execution of a will.

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Frequent application is made to the civil courts to set aside the will of an individual, for the reason that the testator was insane at the time of its execution, and this fact once established, constitutes a valid ground for its annulment as a testamentary disposition. More frequently, however, *weakness* of mind falling short of insanity, old age and susceptibility to influence unduly persistent in its character, are relied upon by the complainant for the purpose of avoiding the legal effect of the document.

(d) *Habeas corpus proceedings:*

A proceeding in habeas corpus involves the issuing of a writ "directed to a person detaining another, commanding him to produce the body" of the latter upon the date and at the place named, to the end that an examination into the cause and propriety of his detention may be had. This method is frequently invoked to secure the release of one theretofore committed to an asylum or other institution as an insane person. At the time of the hearing of the writ the important point for determination is the present state of mind of the detained person, the object being to determine whether or not his mental condition is such that, for the good of the public, he should be further restrained, or should be allowed his liberty.

In this class of cases, perhaps more than in any other, the question of sanity or otherwise is purely a medical one, involving psychological and physiological inquiries, and resort is usually had to medical testimony alone.

2—Method of Determining:

In the cases enumerated the method of procedure is, of course, to introduce proper and competent evidence tending to establish the sane or insane condition of the mind of the party under examination, and this evidence is considered by court alone, or by court and jury, as the nature of the case decrees. For example, an action to set aside a will is triable before a court and jury under a provision of the statutes of the State, and, if, in the opinion of the court, there is sufficient evidence of the insanity of the testator, the matter is submitted to the jury for its determination.

Again: An action seeking the rescission or cancellation of a contract upon the ground that at the time of its execution the complainant was insane, being an application to the court for the exercise of its equity powers, is heard and determined by the court alone. The evidence of insanity so submitted, of course, assumes every conceivable phase and form and includes testimony con-

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cerning the words and conduct of every description of the person whose sanity is questioned. In this field medical experts are supremely useful and they are employed for the purpose of giving their opinions as evidence to aid the court or jury.

3—Tests in Various Cases:

It is not possible to set forth the varying expressions employed by courts in laying down rules for the determination of sanity in each of the various cases which have been considered. It has been held, however, that when the validity of a conveyance has been attacked, the grantor is usually held sane, for the purpose of making such conveyance "if he has sufficient capacity fully to comprehend the nature and effect of his act." And with reference to contracts in general, it is said that it is essential to their validity that the parties have capacity to understand and agree, and that to avoid the contract they must lack sufficient mind to understand in a reasonable manner the effect of the act in which they are engaged. The proof of insanity must go to this length, in order to render the contract void.

It is also held that "either the absence of intellect or a great mental aberration is sufficient to render a contract void." When unsoundness of mind is relied upon as a defense to an action upon a contract, or as a basis of relief upon it, that unsoundness or insanity must be proved to be of such character as that the person had no reasonable perception or understanding of the nature and terms of the agreement.

Mere weakness of mind alone is not insanity, and the courts will not undertake to interfere in every case in which a superior or more astute intellect has obtained an advantage over a more feeble mind.

The weight of authority seems not to require so high a standard of mental vigor and power for the execution of a valid will as is required for the execution of deeds, mortgages or ordinary contracts, and the generally accepted test of testamentary capacity in this State is whether at the time of the execution of the will the testator possessed an understanding of the nature of the business in which he was engaged, a recollection of the property he meant to dispose of, a remembrance of the persons having claim upon his bounty and the manner in which it was to be distributed.

On the other hand, it has been asserted that a testator's mental condition may fall short of that degree of mental derangement generally known as insanity or idiocy, and yet be such to inca-

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pacitate him in law for the execution of a valid will.

It has been tersely and wisely declared: "A testator has no antagonist to meet and no necessity to consider whether he will be benefited or injured by the act in which he is engaged. The ordinary business transactions of life involve a test, reason, judgment, experience and the exercise of mental powers not at all necessary to the testamentary disposition of property."

This explains in few words the reasons for the requirements of less mental ability for the making of wills than is demanded for the execution of agreements and contracts in general.

Summarized, the test in all cases in the civil courts in which insanity is involved as an issue, seems to be whether or not the party was mentally responsible for and appreciated the nature and effect and consequence of the *particular act* in question, for it is perfectly possible for a monomaniac to be held irresponsible civilly in an action based upon some act within the scope of his particular mania, and to be held liable civilly in an action based upon an act outside of that scope. Or expressed otherwise, insanity as a foundation for relief or as a defense must exist with reference to and concerning the *particular act involved.*

4—Suggestions:

It is apparent that in all of the cases enumerated, either the court or jury eventually determines the question of sanity.

Unfortunately, our system is such that aspirants to the bench are not always lawyers of great education and training, and it is common knowledge that in our cities, at least, juries are not drawn from the more intelligent classes. It is not usual that either the court or jury has any considerable range of medical knowledge, and it seems a travesty upon justice to refer to them for final decision a question of such vital importance as the sanity of an individual. They can only weigh conflicting evidence and from it determine probabilities. In the judgment of the writer, the question of sanity or insanity is, in its last analysis, a medical one, involving in its solution the consideration of innumerable matters, psychological and physiological, and the accurate and precise conclusions which true justice requires can only be reached by physicians of the widest learning and the broadest experience.

Numerous obstacles would undoubtedly be encountered in any endeavor to change present practises, and, yet, it is suggested that in some proper way it be made possible for the common pleas court in each county of the State to appoint a commission of per-

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haps three learned and competent physicians to determine the sanity of any person whose state of mind is questioned; such commission to have such powers as would make its existence and findings effective.

It is suggested further that it is within the province, purpose and power of this Section to be the foreleader in accomplishing that end.

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Tests of Insanity in the Civil Court.

By W. B. LAFFER, M. D., Cleveland.

Mind is the product of the highest nerve centers of the brain and the brain is the most complex structure known. Therefore it is not strange that disorders of this wonderful organ should not be reducible to simple definitions. There are all sorts of abnormal mental states such as idiocy, imbecility, feeblemindedness and insanity. The use of the word insanity presupposes the existence of a previous condition of sanity

Esquirsol said, "the demented man is deprived of the good that he formerly enjoyed; he is a rich man become poor; the idiot has always lived in misfortune and poverty." The idiot, the imbecile, and the feebleminded lack something, while the insane are suffering from a disorder of that which they possess. Medically, insanity has been defined as, "a disorder of the mind due to disease of the brain manifesting itself by a more or less prolonged departure from the individual's usual manner of thinking, feeling and acting, and resulting in a lessened capacity for adaptation to the environment" (White).

As alienists we do not recognize that a man may be insane for this act or function in life and sane for another act taking place at practically the same time, excepting in psychic epilepsy, fugues and like changes. Yet this is the legal position, as in law a man may be too mentally defective to make a will, yet sane for a marriage or other contract, and vice versa.

The question of sanity in the civil courts largely concerns: 1. The validity of wills. 2. The responsibility of a party to any contract including marriage and the suicidal clause in insurance

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Read before the Medicolegal Section of the Academy of Medicine of Cleveland, October 29, 1909.

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policies. 3. The question of torts. 4. In habeas corpus proceedings to release an individual held by the State to be insane. 5. Action for damages when insanity is the injury claimed or the result of the injury.

As mental disorders are obscure phenomena the tests or examination should be as exhaustive as possible. One should obtain a detailed family history as to the consanguinity of the parents; their ages and mental characteristics; the occurrence of nervous and mental disorders, syphilis, alcoholism, crime, suicide, premature births; and as to the health of offspring. Also a history of the brothers and sisters, grandparents, aunts, uncles and cousins, as to neuropathic taint or hereditary diseases.

The patient's history should include full name, age, present and former residence and duration of each, the present and former occupation and how long each position was held and cause of change. One should investigate the prenatal, natal and postnatal condition and conditions during early childhood as to convulsions, unconscious spells, nutrition, age of walking and talking and the school record. Question as to venereal and other diseases of later life, including unconscious spells, injuries and operations. Learn the habits as to alcohol, drugs, tobacco, and the sexual function and if married, the health of the spouse and the children, and whether there have been any premature births.

Inquire as to previous attacks, cause; mode of onset; the general physical, mental and emotional state; the variation in weight; change in disposition; sleeping, eating and bodily habits; conduct toward family; presence of hallucinations, illusions, delusions, suicidal or homicidal tendencies; intellectual and memory defects; moral and legal offenses. Record statements of friends, relatives and associates. Observe patient's facial expression, mental peculiarities, movements, gait, tremors, demeanor, clothing and tidiness of dress.

One should make a complete clinical examination of body structure and of all the viscera and their functions and secretions. The anomalies of common physiologic functions are less important than anatomic stigmata. The most important of these stigmata of degeneration are malformation of the skull, palate, ears, limbs, genitals and the psychic stigmata. Two anomalies at least should be present to have any significance, unless of high value such as microcephaly or hydrocephaly. The ideal type of man mentally or physically does not exist, as we all show some defects, some

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anomalies, and some weak points. Maudsley, Bianchi and others believe that eccentricity possesses a degenerative significance equal to, and possibly greater than, insanity.

This investigation is to be followed by a neuropsychologic examination of cranial nerves; eye-grounds; ears; sensation, including special sense; motor system; and bodily measurements. In special cases an examination of the cerebrospinal fluid and serum tests for syphilis should be made. The mental tests should include speech; attention; memory; orientation; understanding; emotions; disturbances of judgment as hallucinations, illusions, delusions; attention; capability to do mental and physical work; clouding of consciousness; sleep; dreams; disturbances of volition and action. Memory tests should include impressibility, retentiveness, accuracy of memory or fabrication.

Tredgold says, "Recent research shows that mental deficiency is the result not of chance, but of law and due to certain definite antecedent conditions." These conditions are many and varied, but they are all such as induce nervous and physical debility and amongst the chief of them are alcohol and consumption. At first the mental change which results is slight and shows itself as migraine, hysteria and the milder forms of epilepsy. Later and in a subsequent generation it becomes more pronounced and gives rise to insanity and early dementia; whilst at a still later stage we see the conditions with which we are now concerned, namely, actual defect of mind-structure, amentia or mental deficiency.

The criterion of insanity in the civil court varies from that in the criminal and probate court. In the different actions in the civil court alone the law recognizes various degrees of mental derangement and responsibility that are hardly scientific from an alienist's viewpoint. So in considering the possible cause for the individual's insanity we must bear in mind that alcohol seems to produce about 20% of the insanities and inherited predisposition to insanity is found in from 60 to 90% of the cases.

McDonald says that, "substantially every individual at some time or other during his life is exposed, in many cases repeatedly, to many of the so-called exciting causes of insanity, both mental and physical, and yet despite this fact we find that sanity is the rule, and insanity the exception." A cause may be sufficient to cause insanity in one and not in another, or the cause may be sufficient only at times with the same individual. Yet physicians are usually called upon to investigate the responsibility of the indi-

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vidual with the legal restrictions according to the action in question.

In the case of the validity of a will the law requires the testator to have a "sound disposing mind," either at the time when he gave instructions for the will to be prepared or at the actual moment of its execution; it is not necessary that he should have a "sound disposing mind" on both occasions. It often falls to the lot of a medical man to examine a patient in order to decide whether he is of a sound disposing mind. One should then endeavor to ascertain: Whether the individual is capable of enumerating, on the one hand, the details of his estate, and on the other, the individuals who have any reasonable claim to benefit from it; and whether there appears to be any person who has exercised undue influence on his decisions, or whether he has been the victim of a strong suggestion in the waking or hypnotic state.

Bernheim gives to the word, "suggestion" a very broad meaning, and may include persuasion, advice, and teaching. Suggestion may be in every deed and we all act under its influence and we only differ in degree as to our susceptibility. True suggestion, however, presupposes the complete setting aside of the superior center of control in the subject, and the subjection of his lower centers in passive obedience to the superior centers of the suggestor or hypnotizer. Unless a man is really insane he has always motives or moving forces for every act and he is responsible for them if he has a sane mind and if he can judge of the character of the act.

Undue influence must be such as to destroy the free agency of the testator and it is immaterial how little the influence was if free agency is thereby destroyed. The physician has a difficult task in determining this, which is done by investigating the mental habit of the testator, the contents of the will, the amount of his property and the personal and blood relationship of the beneficiaries to the testator.

One should ascertain whether the testator is suffering from any delusion which might influence his decision and whether he has any insane or unnatural dislike or suspicion of any members of his family, who would in the ordinary course become beneficiaries; if a delusion does not influence the mind of the testator in making the will it cannot affect its validity.

Also, whether, having once announced his decisions, he is capable of recapitulating them, say a few days later. The law

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upholds a will made from eccentric, frivolous or capricious motives, provided it can be shown that the will represents the true wishes of the testator and was not the result of an eccentricity, frivolity, or caprice of the moment.

Most wills are made after the individual has reached an age when the presence of senile degenerative changes or the more acute lesions resulting from these changes have warned the testator or his friends that his expectancy of life is not great. In senile dements the delusions often relate to property and they believe that they are being defrauded and this leads them to lose confidence in their former trusted relatives and to intrust or will their property to designing persons who talk plausibly and seem to do as desired. The loss of natural affection for relatives is one of the commonest symptoms of insanity, and may cause the testator to leave out his relatives from his will.

We physicians should always look for the signs of senility and organic brain lesions or kidney lesions; see if there has been any evidence of brain tumor, multiple sclerosis, paresis, etc. Has the testator had signs of marked cerebral arteriosclerosis, such as attacks of syncope, headache, dizziness, childishness, dementia? Was he an alcoholic and had he had syphilis? Was he a drug fiend? Has he suffered from a stroke of paralysis? Was there aphasia, dysarthria, tremor, etc.? Note the condition of the pupillary and bodily reflexes.

The most prominent disturbance of bodily function seen in the insane is a hemiplegia or paralysis of one side of the body. Insanity is more liable to appear when the hemiplegia is of cortical origin as with a cerebral sclerosis, meningo-arteritis or meningeal birth hemorrhage, or when due to traumatism. Sanity is often impaired after ordinary hemiplegia; if the paralysis is associated with aphasia or dysarthria it is almost the rule, as Marie and Mercier have pointed out. Pasteur showed great mental vigor by his discovery of the remedy for hydrophobia and other good work after he had suffered an attack of hemiplegia, yet he could have had derangement of certain psychic centers rendering him irresponsible on certain subjects.

It is almost impossible to satisfactorily test an individual suffering from aphasia or dysarthria as to his sanity. We know that the cerebral cortex taken as a whole is psychic and that here the psychic neurones are located, but we cannot localize the psychic functions of memory, attention, association of ideas, etc., into sep-

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arate centers. We may divide the psychic function into three groups: 1. The sensorimotor psychic functions or psychic functions of external relations. 2. The unconscious and automatic psychic functions. 3. The superior psychic functions or those which are conscious and voluntary. It seems that lesions of the prefrontal lobe, especially the left, is more liable to be accompanied by profound mental disturbances such as the loss of free-will and conscience, and a patient thus affected may reply to simple questions, repeat short phrases and even do easy sums in addition.

We have no inkling of the means by which a certain change in brain structure produces a certain change in conduct nor the relations between certain cell and fiber changes and the occurrence of a certain class of delusions. We know that the psychic acts disappear, commencing with the highest and most altruistic and ending with the most personal and lowest. The emotions relative to the ego persist until the last and take unto themselves greater and greater importance so that egoism is nearly always present in mental disturbances.

The cerebral center of reason and thought being complex and divisible, so in men of good health there may be an unequal development of certain faculties and a man be intelligent and yet irrational, and while he is a man of talent or even genius he may nevertheless be lacking in good sense or judgment. According to the number and kind of psychic neurones affected, reason may be completely submerged or but slightly affected. We have a class of patients that have lost their reason, free-will and conscience, and their superior intellectuality and therefore are insane. Then we have those psychically affected who have not lost all that goes to make up reason and superior thought but they are nevertheless disturbed in their psychism and are not normal, but are semi-insane. It is impossible to say where the line of demarcation between sanity and insanity should be drawn.

Inebriety may affect the validity of wills because the inebriate may not possess testamentary capacity or because the influence of insane delusions may be so pronounced that the will cannot be supported or because the evidence of undue influence is so apparent that it cannot be disregarded. At the time of intoxication or by reason of habitual inebriety or alcoholic insanity the mind of the testator may be so confused, enfeebled or diseased that he cannot fulfil the requirements of the law in regard to his testamentary mental capacity, while on the other hand he may be suffering

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from any of these forms of inebriety, and yet execute a will that can very properly be sustained at law, while medically we cannot grant that the testator is responsible with a mind acting normally.

Now in the case of contracts the occurrence of insanity does not excuse the party from the performance of a contract made previously to his becoming insane. Insanity in the case of contracts must be to such a degree that there is entire absence of intellect, or at least great mental aberration, so that there is an inability to understand the contract or to properly consent to the same. Temporary or even permanent monomania or mere mental weakness is not a sufficient cause to set aside a contract.

Marriage is a contract the validity of which, as in other contracts, depends upon the consent of the parties and the agreement of their minds. A physician is often called upon to decide whether at the time of the marriage the plaintiff's mind was so affected by an alcoholic intoxication or alcoholic degeneration of the brain, or an insanity, as to be incapable of understanding the meaning of the act. Cases of incapacity in matrimonial actions are often confused with and hard to distinguish from cases of fraud, mental duress and mental weakness, due to age, sickness, action of drugs, and particularly undue influence. All of which may be cause for such suits. The feeblemindedness or insanity must be such as to affect an understanding of the marriage contract. Persons affected with monmania, pyromania, kleptomania or dipsomania may still be legally fit to marry. That which would disqualify a person from entering into *property* relations might not invalidate a marriage.

Physicians may be called upon to give expert testimony in regard to responsibility in suits for breach of promise when the defendant claims he was mentally incompetent at the time the promise was given. A promise to marry made during an attack of dipsomania in chronic alcoholism, in alcoholic or other insanity, may be avoided if the defendant can show that at the time of the promise he had not sufficient mind to make a valid contract or that his mental faculties were so perverted that he did not comprehend the nature of the act.

Most insurance policies have a suicide clause and a physician is often asked to determine the mental condition of a suicide. The suicide of the insured is not a breach of warranty in the application that he will not "die by his own hand" if at the time of the suicide the reasoning faculties were so far impaired that the

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insured was unable to understand the moral character, general nature, consequences and effect of the act, or when he was impelled thereto by an irresistible insane impulse.

Malicious deeds of the insane, such as breaking or destroying objects of greater or less value either planning or permitting to have the suspicion and blame fall on others are not uncommon.

Insanity is no excuse for a tort or civil wrong not involving as an ingredient a specific intent or malice, and the injured party is entitled to damages on the principle that every man is entitled to possess inviolate his personal security, liberty and reputation. The law, in spirit at least, recognizes attenuated responsibility; the degree of which is largely based on the medical man's opinion as to the amount of alienation the defendant has. The jury will not likely award heavy damages, say in a case of slander in which the offender is known to be so insane that nobody would attach any importance to his statements.

Physicians may be called upon in an action for damages in which it is claimed an injury was the immediate or remote cause of insanity. We should remember that traumatic insanity is uncommon. It may be immediate but as a rule does not arise until long afterwards and a distinct change in character being noticed in the interval. Traumatic insanity may result from slight damage or severe injury. Traumatism may be followed by organic changes. Head injuries may affect the brain by fracture of the skull, depression of bone, by laceration and hemorrhage, and by simple concussion; there may be only a capillary hemorrhage. Traumatic insanity can occur in those not predisposed by heredity, alcoholism, syphilis, sexual excesses, worry and overwork, but is more common in the predisposed.

The so-called confusional insanity is the type most often seen in these cases, especially when following shock, fright or exhaustion.

We all know that there may be prenatal, natal or postnatal injuries to the child's brain that will result in idiocy, imbecility, weakmindedness, epilepsy, or paralysis for which the obstetrician or child's caretakers may be blamed. If convulsions follow cranial injuries they are apt to persist and the child may present the progressive mental failure of the epileptic. Head injuries in youth may produce conditions such as seen in children, also maniacal outbreaks, morbid impulses, perversion of character and the so-called moral insanity and monomania.

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Mickle says that "In the adult as a result of cranial injury there may arise any one of four varieties of mental disorder:— 1. Functional mental disorder (mental automatism, stuporous insanity, acute hallucinatory insanity, melancholia). 2. Paranoia (possibly preceded by insanity with unsystematized delusions; often followed by, or associated with, organic brain and cord disease). 3. Traumatic and organic brain disease, including in this group traumatic dementia, traumatic general paralysis, organic epilepsy etc. 4. Functional neuroses with mental symptoms.

After brain injury amnesia may be present of the retro-antrograde type. That is loss of memory for a space of time before and after the injury. As stupor lessens after head injury we may have delirium, excitement, hallucinations, illusions and delusions. Some cases of primary dementia seem to date from the receipt of head injuries.

In an action in the civil court we may see a wealthy man, under a delusion that he is ruined, file his petition in bankruptcy. We may see a suit against a poor man who, under the delusion that he is wealthy, has ordered goods far beyond his means and, believing them to be his, gives them away or pawns or sells them. Patients in the early stage of paresis, before the disease is recognized, often run into debt in consequence of giving orders for things much beyond their means and not infrequently are proceeded against for theft and fraud.

In the civil court we may be summoned to investigate cases of multiple personalities, the so-called fugues of Janet. Complications have arisen mostly of a civil character as when the individual's property has been disposed of during his absence, it being supposed that he was dead.

Total amnesia is rare and is seen chiefly in major hysteria, epilepsy and with alcohol and drug intoxication.

In the civil court the question may be raised as to an individual's being an insane litigant, as it is not infrequent to see such that believe that their lawsuit was lost due to prejudice or to the bribing of judge or jury, and they may endeavor to have a case carried up or brought to trial that has no merits and is merely the product of systematized delusions.

When called to test the sanity of one who is the subject of a habeas corpus proceeding to obtain a patient's release from an asylum, the alienist should proceed with great care for it is hardly conceivable that the physicians in charge should, with their more prolonged study of the case, fail to recognize that the patient was

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sane; and equally hard to believe that they, knowing him to be sane, should still confine him.

Everybody knows insane people with whom one may talk for a long time without noticing anything out of the way, other than a certain queerness or slight degree of eccentricity up to the time when they are led to say that, "they are emperors of the wilderness, or martyrs living in huts." Patients with the so-called lucid mania have, on superficial examination, every appearance of reason. A person may reason well and yet be insane, the premise being wrong and founded on delusions. This is frequently seen in paranoia.

While delusions have been considered until recently a necessary accompaniment of insanity, of late years the necessity of proving the presence of delusions has been abandoned. Delusions are known to occur in the sane and to be absent in the insane, and are only to be considered a symptom of insanity.

Mercier says, "The delusion which is the most conspicuous feature in intellectual insanity is not the most fundamental nor the most important. What is the most fundamental and important is the defective reasoning power which allows the delusion to exist uncorrected and incorrigible."

"The defective reasoning shows itself in various ways as well as by delusions and in nothing is the defect more important than in the lack of appreciation of circumstances in which it is so often exhibited."

"Insanity is not estimated by the disorder of the process of thought but by the corrigibility of the erroneous beliefs. If they are corrigible they are sane mistakes while if they remain incorrigible they are illusions, hallucinations or delusions as the case may be."

"Many insane persons are intellectually extremely acute and can reason logically but with respect to their delusions they are not able to reason with ordinary validity for if they were the delusions would disappear."

Memory should not be perfect in anyone, yet there is a defect of memory so great as to be manifestly morbid, as when one forgets one's name, occupation, marriage, residence, names of children and husband, and the way about one's residence.

There is probably not a single case of insanity in which the will, speaking broadly, is not at sometime or other in the course of the illness more or less disturbed. The free determination of the will in certain directions is perverted by delusions, interpre-

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tations and by depressive emotional states. The will may be strong but misdirected as in paranoia. The will in persons who are regarded as sane may be weak and vacillating. As it is practically impossible to measure the mental condition and responsibility it is equally difficult, as demanded in various civil actions, to define attenuated or partial responsibility. That is, responsibility for a will but not for a contract, etc.

Responsibility is dependent on the proper functions of the psychic neurones which are legion, and the cortical psychic centers are eminently complex. It is therefore easy to see that if in certain cases these centers are entirely normal and if in others they are profoundly altered, it is practically impossible to measure either a mental condition or responsibility. Yet the mission of the expert alienist is to decide if the condition of the subject's nervous system has permitted him to carefully weigh and judge these motor forces and motives, i. e. whether his nervous system renders him responsible or irresponsible. A medical man should leave the natural facts alone and seek by a physiopsychologic examination of the subject to find out whether the individual decided to perform the act with his nervous system in good condition or with these psychic neurones diseased.

A jury ought not to be able to condemn an individual whom medical science has declared to be irresponsible. It has been proposed that we institute in addition to the ordinary jury, a second so-called technical jury composed of physicians, sociologists, presidents of charitable societies and directors of penal institutes. This technical jury to weigh the technical evidence, determine the degree of responsibility and make a choice of punishment while the duration of the punishment would be left in the hands of the court.

I believe that it would be well for the technical jury to be made up exclusively of medical men for it is doubtful if any one can be as competent as a physician, trained in the new psychopysiologic school, to judge of the quality and the degree of the psychism and this seems to be the basis of modern expert testimony.

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Inflammation and Suppuration of the Omentum.

By C. A. HAMANN, M. D., Cleveland.

The importance of the great omentum pathologically and from a surgical standpoint is considerable. It is the purpose of this brief paper to recall some points in the structure and functions of this peritoneal reduplication and then discuss certain inflammatory affections to which it is subject.

At birth and for sometime thereafter the great omentum is a thin veil-like structure, containing but little fat; the two inner layers have not as yet fused with each other and it is possible to force air or an injection mass between them and thus distend the lesser peritoneal cavity. Owing to its lack of development it is practically never found in the hernias of infancy.

In the adult it varies greatly in length, being sometimes very short, at others reaching quite to the symphysis pubis. Its blood-vessels, derived from the gastro-epiploica dextra and sinistra, run in the long axis of the body and turn back in loops at the lower end. The occurrence of hematemesis after ligation of these vessels is occasionally observed and is ascribed by V. Eiselsberg to thrombosis of these vessels.

The functions of the omentum are to fill in irregularities between intestinal coils, to facilitate the movement of these coils, and to afford protection and warmth. It aids in the absorption of fluids from the peritoneal cavity, and there is evidence to show that it is concerned in rendering innocuous septic material. In cases of penetrating wounds of the abdominal wall the omentum may prevent the escape of intestinal coils. By the formation of adhesions it assists in walling off inflammatory processes, or it may prevent the escape of intestinal contents when ulcers rupture; the adhesions to tumors may furnish part of their blood-supply.

The curious tendency of the omentum to undergo hypertrophy when it is an occupant of a hernial sac is familiar to the operating surgeon; this hypertrophy of the protruded part may prevent the reduction of the hernia, and often reaches an enormous extent, so that a half-pound or more of the fatty mass has to be cut away in cases of large umbilical and inguinal hernia.

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For the purpose of strengthening the line of suture, the great omentum may be stitched over it, in cases of intestinal resection or after closing perforations.

Congenital slits in the omentum may allow a coil of intestine to pass through and thus strangulation may ensue; strangulation may also be caused by omental bands which bind down the bowel. The traction exerted by the protruded omentum upon the stomach, in cases of umbilical and epigastric hernia may be productive of digestive disturbances. While paracentesis is being performed, the omentum may close the opening of the cannula.

From the above recapitulation it is evident that the omentum is an important structure to reckon with.

It is not the object of this paper to describe inflammation of the omentum in a hernial sac, or that associated with appendicitis and other infectious processes in the abdomen, but rather to allude to the inflammation and tumor formation following ligation of portions of this structure. These are not mentioned as possibilities in the vast majority of works dealing with hernia, or at any rate they do not seem to be as well known as they should be.

The case that attracted my attention to the subject occurred a number of years ago. The patient, a middle aged man, was operated upon for the radical cure of an inguinal hernia; a portion of the omentum had been tied off with catgut. The wound healed, in a week or ten days by first intention, and without complications. He then began to complain of abdominal pain and soon a tender swelling could be felt in the hypogastrium. This reached the size of an orange and his temperature remained elevated for a week or more, 102⅘° being the highest. The symptoms and physical signs then gradually subsided and he made a complete recovery.

The cause of the disturbance was a mystery to me, till I saw an article by Braun (Über Entzündliche Geschwulste des Netzes, *Arch. F. Klin. Chir.*, Bd. 63, 1901, p. 378). This author described five similar cases of his own and has collected 32 cases from the literature. More recently Leroy (*Arch. Gen. de Chir.*, Aug. 1907, p. 78) has written extensively upon inflammations of the omentum. He states that omental inflammation after hernia operations is quite rare, Lucas Championniere having encountered only two cases in a series of 275 operations and Dubar but one in a series of 350 operations; there are 60 instances upon record, which is an exceedingly small number, when we consider how frequently the operation is done. However, as Morestin points out, a certain number probably pass unrecognized, because of the slight disturbance caused.

I have since seen two additional instances: One of them occurred in a middle aged man who had been operated upon for acute appendicitis; the omentum was inflamed and thickened at the time of the operation and

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had to be separated from the appendix. The patient did well for a week, and then developed fever and a tender swelling three or four inches above the seat of operation. Resolution took place and the patient recovered.

The other instance also was in a patient upon whom I operated for acute appendicitis. Mr. M., aet. 38, a rather stout individual, had acute appendicitis on July 27, 1909. As the tumor mass was in the median line, the incision was made here; there was some pus and a grangrenous appendix was removed, from the pelvis. The bulky omentum was adherent around the appendix and was inflamed.

His fever promptly subsided after the operation and he progressed nicely for about ten days; then he began to have abdominal pain and his temperature rose to 102°. Soon a mass could be felt just below the umbilicus; this increased in size and on the twentieth day after the first operation it was incised and two or three ounces of pus evacuated. It could be indefinitely determined that the pus was in the lower part of the great omentum. The patient subsequently did well.

These "inflammatory tumors of the omentum" as Braun calls them, appear at a period varying from one to ten weeks after operations in which the omentum is tied off; there are recorded cases in which the interval was as long as four months and even three years. It is natural to infer that infection, either previously existing or resulting from the ligature material, is the cause. The swellings may be found almost anywhere in the lower abdomen depending partly upon the locality in which the omentum was tied off; usually however they are in the vicinity of the umbilicus. The surface is smooth, the mass is firm in consistence, sensitive to pressure, and is not influenced in its position by respiratory movements. If there are no parietal adhesions, the swelling is movable laterally and upward but not downward; as the intestines lie behind it, there is dulness on percussion. Usually pain is the first evidence followed by fever, occasionally chills and vomiting; the course of the temperature depends upon whether or not suppuration takes place.

The inflammatory process may undergo resolution in the course of several weeks or longer; or suppuration may occur. In one recorded case the tumor remained stationary till the patient's death a year after its appearance.

The diagnosis is easily made, if one bears in mind the possibility of such inflammatory swellings occuring after ligation of the omentum and can then elicit the physical signs and the symptoms outlined above. In some cases they have been mistaken for ovarian cysts, enlarged spleen and malignant growths, and the diagnostic difficulty will be increased if they occur a long time after operation (Braun).

The treatment need not at first be operative; rest in bed of course is essential; locally heat and moisture in the form of wet packs may be applied. If the progressive increase in the size of

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the swelling, fever, parietal adhesions and leukocytosis indicate the presence of pus, an incision is to be made and the abscess cavity evacuated and drained. The ultimate results are in the vast majority of cases favorable. An effort should be made to prevent the condition, by absolute asepsis in the operation and of the ligature material, by ligating only non-inflamed omentum and by including only small portions of the omentum in each ligature.

In this connection it may be mentioned that Braun (*Deutsche Ztschr. f. Chir.*, C. p. 1) has described interesting cases of "inflammatory tumors of the intestines" which simulate neoplasms, and Schlosser (*Arch. f. Klin. Chir.*, Bd. 88, Heft 1) and Hain (*Arch. f. Klin Chir.*, Bd. 90, p. 496) report cases of inflammatory swellings of the abdominal walls after hernia operations.

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The Treatment of Placenta Prævia.

By ARTHUR H. BILL, M. D., Cleveland

The presentation of this paper upon the treatment of placenta praevia was prompted chiefly by the continued high mortality, both of the mother and the child, resulting from the usual methods of managing such cases. The mortality of the child is by far greater than in any other complication in obstetrics, and with the improved methods which have been adopted from time to time, and which have materially lowered the maternal death rate, there has been very little decrease in the fetal mortality.

A glance over the history of obstetrics shows that the same has been true in regard to nearly all the difficulties which confront the obstetrician, that the chief aim in the past has been toward the welfare of the mother, and rightly so, but with an almost utter disregard of the child's life. But it is gratifying to note that during the past few years there has been somewhat of a reaction in this respect, so that the more recent developments have largely to do with saving the life of the child. Thus craniotomy, which was formerly performed so extensively, is being done less and less frequently, and one may say that the various complications which formerly furnished indications for craniotomy are so well met by our present-day procedures that craniotomy on the living child is practically never indicated. It is to be hoped that a similar de-

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crease in the fetal mortality may be obtained in cases of placenta praevia.

It is frequently stated that the fetal mortality can never be lowered because so many of the children are premature, and hence the child is not worth considering; but that this factor is not so overwhelmingly against it, is shown by the statistics of Strassman, which show that 36% of the children are born at full term, 42% in the eighth and ninth months, and only 19% hopelessly immature. Hofmeier puts the last class even lower, 16.5%. Thus we have to deal with over 80% of viable children at the time of delivery, and that we should be satisfied to allow the fetal mortality to remain at over 60% seems incredible. L. Müller, in 2,365 cases of placenta praevia, found a fetal mortality of 64.18%.

The following collection of cases by various writers gives a good idea of the results ordinarily obtained.

Spiegelberg mentioned 102 cases collected by Holst with a maternal mortality of 24%; 64 cases collected by Kuhn with a maternal mortality of 23%; and 339 cases collected by Simpson with a maternal mortality of 33%.

Kronig collected 6,569 cases with a maternal mortality of 9.3%. McPherson reported 250 cases from the New York Lying-in Hospital with a maternal mortality of 18%.

Jewett collected 2,010 cases from German, French, and Italian literature of the last two years. The maternal mortality was 10.9%.

The fetal mortality has been given as follows:

Zweifel	50-75%	Weber	68%
Spiegelberg	50%	McPherson	44.4% at birth, 14% additional during the first 10 days.
Hofmeier	63%		
Nordman	62%		
Oberman	62.5%	Jewett (2,010 cases)	57.3%
Behm	70%	Kronig (6,569 cases)	58.7%

In this paper I shall take up the various most important procedures in common use in the treatment of placenta praevia, attempting to consider them as well from the standpoint of the child as from that of the mother, and, if I seem to be turning too much toward the side of the child, let it be borne in mind that I do so only on condition that the mother's chance shall not be lessened thereby.

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There are now, and probably always will be, a number of different lines of treatment for placenta praevia, depending upon the individual case; the surroundings of the patient; whether she can be constantly under observation; whether the child is alive and viable; and the variety of placenta praevia.

It is always advisable that these cases be treated in a hospital if possible where the patient may be constantly under observation. That placenta praevia is a frequent cause of abortion is a matter of considerable doubt. According to Hofmeier, who gave particular attention to placenta praevia and spent much time in its study, it must be a very infrequent cause of abortion. At any rate in the great majority of cases we are called upon to manage a placenta praevia after the beginning of the eighth month.

The method advised by Lusk and adopted by other well known obstetricians, of inducing labor as soon as the diagnosis is made, is of course without any consideration for the child, but may be necessary in those cases in which there is a very profuse hemorrhage at first and when the patient cannot be under observation. But very often the first hemorrhage will subside under proper treatment with rest in bed, and in this way the pregnancy be prolonged until the chances of delivering a living child are improved. However, in carrying out this plan of tiding the patient over as nearly as possible to full term she should be in a hospital and under constant observation.

If rest in bed does not prove sufficient to stop the hemorrhage, or if a marked hemorrhage recurs while the patient is in bed, we must proceed to other measures which, unfortunately, of necessity, terminate the pregnancy.

Of the older methods used for this purpose may be mentioned first that of packing the cervix and vagina with gauze. The object of this is to check the bleeding and at the same time to bring about softening and dilatation of the cervix. To be efficient the packing must be put in very tightly, preferably under an anesthetic. Before labor and during the early part of labor this is very useful as a temporizing procedure, e. g.: when the patient is to be removed to a hospital or when her condition is such that immediate delivery is not deemed wise, allowing time to get the patient into a better condition for delivery. Often when the gauze is removed we find that the os is somewhat dilated, but usually it is necessary to complete the dilatation in some other way. But during this dilatation more and more of the placenta is separated and consequently the supply of oxygen to the child, which we may

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call its respiration, is cut off, resulting in a high fetal mortality. At the same time more or less bleeding takes place and often it is necessary to remove the packing and to repack, during which procedure more blood is lost. Dührssen advises against packing after rupture of the membranes on account of the danger of internal hemorrhage. The mortality for the mother when this method was used extensively has been put at about 30% by the various writers, while the mortality of the child was 60%. The high maternal mortality was due in a considerable degree to the fact that the os was not fully dilated after removal of the gauze and the child was dragged through rapidly in order to save its life, resulting in deep lacerations of the soft, vascular cervix and consequently there was dangerous postpartum bleeding. As a means of bringing about dilatation of the cervix this cannot be said to be an advisable procedure, although as a temporizing measure it is invaluable.

As long as the membranes are intact more and more of the placenta is separated with each pain, and so new vessels are opened up and increased bleeding results. Rupture of the membranes allows the placenta to retract with the lower uterine segment instead of separating from it, lessens the contents of the uterus and thus favors closing of the uterine vessels, and incites better contractions. It also allows the presenting part to enter the cervix and by its pressure to check the bleeding. This method is in a very limited number of cases sufficient and offers good results. Conditions essential for its use are: a normal presentation, the presence of normal labor pains, and the existence of only a lateral placenta praevia or a so-called low implantation of the placenta. The chief objection to this method has been that if there is continued bleeding after rupture of the membranes it is harder to do anything else e. g., it is harder to do a version, and packing is more uncertain in its efficiency. The cases in which there is continued bleeding after rupture of the membranes are, however, those in which there is a high grade placenta praevia and so this objection really lies in the improper selection of cases for this method. Miller reports 41 cases in which this method was adopted with a maternal mortality of 34.1% and a fetal mortality of 65.8%. Rosahl reports 8 cases with no maternal mortality and a fetal mortality of 50%.

Simpson's method of separating the whole placenta with a view to stopping the hemorrhage almost necessarily sacrifices the child and is a very crude procedure, scarcely to be mentioned at the present time in view of our many superior methods. The same may be said of the method of separating one side in a case of

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central placenta praevia with the idea of converting it into a partial placenta praevia. This method has given the following results: Waller gives 33 cases with a maternal mortality of 30.6% and a fetal mortality of 92.5%. Trask gives 61 cases with a maternal mortality of 21.3% and a fetal mortality of 67.2%. Simpson gives 47 cases with a maternal mortality of 6.39% and a fetal mortality of 97.9%.

Of the methods which tend to a more definite termination of labor and which have served to greatly lower the maternal death rate may be mentioned first of all the combined version of Braxton-Hicks. This may be done as soon as the os will admit two fingers and is an efficient method of checking the hemorrhage, the breech firmly plugging the os and by its pressure preventing further bleeding. If bleeding should at any time recur traction upon the foot will check it. After the version is performed the pains usually become stronger, due to the irritation of the nerves of the lower uterine segment, and the birth is usually accomplished within a few hours. But after performing a Braxton-Hicks version one must not hasten the delivery. Herein lies the greatest objection to this method, for while it will check the bleeding the birth must be left practically to itself and the chances of saving the child are very slight. If extraction is attempted deep cervical tears will probably result and consequently severe hemorrhage. Undoubtedly many mothers are lost in this way. There is a great temptation to hurry the birth in order to save the child but this must be avoided. This method reduced the maternal mortality from about 30% with the older methods to about 6.5 to 10% according to the most favorable statistics. But the fetal mortality instead of being lowered was really increased. If the case is one of central placenta praevia and the operator bores through the placenta to get the foot, the child will almost surely be sacrificed. In this case in addition to cutting off the supply of oxygen to the child, the fetal vessels may be opened up, causing the child's death from direct hemorrhage. Before performing a combined version one must know exactly the position of the child, for if there is difficulty in performing it and the version is not completed, the condition may be aggravated.

The following results have been reported from this method:

	Maternal mortality.	Fetal mortality.
Zacharias	14.9 %	61.5%
Gusserow	6.5 %	78.4%

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Olshausen		16.2 %	35 %
Wyde		7.2 %	65 %
Tramer	central	46 %	93 %
	lateral	15 %	38 %
Strassman,	spontaneous course	8.65%	80 %
	extraction	20 %	52 %
Hammerschlag		6.3 %	84 %
Krönig (1,602 cases)		6.26%	58.9%

The metreurynter was first used by Schauta in 1883 to control hemorrhage and to dilate the os at the same time. Maurer in 1887 combined this with a constant pull on the bag. In France, Champetier de Ribes constructed a special bag for this purpose, of which the Voorhees modification is by far the best pattern which we have.

The bag was advised with the idea of improving the child's chances and acts exactly as does the breech of the child after the Braxton-Hicks version. It may be inserted when the os is scarcely larger than one finger and is very efficient in checking the hemorrhage, also exciting pains and bringing about dilatation.

Before inserting the rubber bag, the membranes should be ruptured and when used in a case of central placenta praevia the cotyledons over the os must be torn off and then the membranes ruptured. The latter procedure cannot be advised since the results for the child are no better than those after version under the same conditions, but in the case of marginal placenta praevia, where the bag can be inserted past one edge of the placenta, a lowered fetal mortality may be expected. Often version is not necessary after the use of the bag, the head following into the cervix and the child either being delivered spontaneously or aided by forceps. But if version is necessary, internal podalic version may be done followed by immediate extraction provided that a bag was used of sufficient size to completely dilate the os.

If used in properly selected cases the metreurynter offers better possibilities for the child, at the same time giving slightly better results for the mother than the Braxton-Hicks version, but its promiscuous use in all sorts of cases has not resulted in decreasing the fetal mortality to any extent.

The results obtained from the use of the metreurynter are given as follows:

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	Maternal mortality	Fetal mortality.
Zimmerman	6.03%	37 %
Blacker (22 cases)	4.5 %	54.5%
Duhrssen (6 cases)	0	16.6%
Hannes (143 cases from the Breslau Clinic)	5.5 %	51.2%
Kronig (380 cases)	6 %	33 %

The methods so far mentioned have served to lower the maternal mortality in all cases and the fetal mortality in the lateral and marginal varieties of placenta praevia.

It is, however, in the central placenta praevia that the greatest mortality is seen both for the mother and the child, and when this variety is considered, of course the mortality is decidedly higher. Statistics in regard to the central variety alone are not so plentiful as one would expect, but to illustrate: Jardine reports 12 cases of central placenta praevia with a maternal mortality of 16⅔%, while Depard reports 25 cases of central placenta praevia with a maternal mortality of 56%. Walther Pipo reported, from the Göttingen Clinic, 13 cases of placenta praevia with a maternal mortality of 15.8⅔ and with a fetal mortality of 84.6%. Zacharias reported, from the Freiberg Clinic, 20 cases of central placenta praevia with a maternal mortality of 20% and fetal mortality of 50%. McPherson reported 102 cases from the New York Lying-in Hospital in which the maternal mortality was 24.7% and the fetal mortality 59.4%.

The question now arises whether we may use other methods which will not tend to increase the risk to the mother but will nevertheless lower the fetal mortality. One thing is certain that the child's chances will be increased only by methods which aim at immediate extraction, since it is evident that with the methods already mentioned the fetal mortality can never be lowered to any extent in cases of central placenta praevia or well marked cases of partial placenta praevia.

Of the rapid methods of delivery the accouchement forcé was formerly much used, the os being dilated manually or opened by means of mutiple incisions and the child rapidly extracted. Mueller collected 92 cases treated in this way with maternal mortality of 47.8% and a fetal mortality of 62.7%. The method of manually completing dilation of the cervix after first packing with gauze is still used in certain clinics. Auvard gives the mortality for cases treated in this way as 28%.

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The Bossi dilator has been used to open the cervix in cases of placenta praevia, but in the writer's opinion this method should be mentioned merely to condemn it.

It must be evident that any method of dilating the cervix in a well marked case of placenta praevia, to offer any reasonable hope for the child, must be very rapid, and this rapid dilatation is just the thing which is contraindicated if we are to consider the welfare of the mother.

This leads us to methods of delivery without dilating the cervix. The classical Cesarean section in cases of placenta praevia did not furnish favorable results during the early years in which it was done, as might have been expected since the results of the Cesarean operation itself were not good. The statistics of these early cases had such weight that the operation has been more or less in disfavor even to the present time. But a glance at the results of the cases on record during the last few years puts this method in a decidedly better light.

Fry, of Washington, attempted to collect all the cases on record and reported his findings at the meeting of the American Gynecological Society in 1909. He divided them into two groups, one prior to 1905 and the other subsequent to 1905. Of the first group there were 30 cases with six maternal deaths, i. e., 20% mortality. Subsequent to 1905 Fry found 13 cases with one maternal death and three fetal deaths. In addition to these I have been able to collect 20 cases as follows:

	Maternal mortality.	Fetal mortality.
Krönig, 8 cases	0	0
Sellheim, 8 cases (extraperitoneal abdominal Cesarean)	0	0
Crile, 2 cases	0	0
Jardine, 1 case	0	0
Bill, 1 case	0	0

Thus, since 1905 we have 33 cases with the death of one mother and three babies, a maternal mortality of 3.03% and a fetal mortality of 9.09%. The one maternal death occurred on the sixth day after operation in a patient supposedly tuberculous.

From personal experience I can speak of a single case and while I realize that the results of one case mean very little, still to one who has handled such cases by the usual methods the comparison was very striking. The case was that of a woman 32 years of age and in her fifth pregnancy. She was first seen Aug.

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28, 1909, on the day of delivery after a profuse hemorrhage. Three weeks previously there had been a moderate, and one week before a fairly brisk, hemorrhage. The os would easily admit one finger and it was found that the placenta was separated from the uterine wall for about a finger's breadth in each direction, but the edge of the placenta could not be felt. The case was apparently one of complete central placenta praevia. The patient was removed to the Maternity Hospital and given saline infusions subcutaneously after which abdominal Cesarean section was performed in conjunction with Dr A. I. Ludlow. A living child weighing 6 lbs. 15 oz. was delivered. The mother had an uncomplicated convalescence and was discharged on the eighteenth day. There was no postpartum hemorrhage, in fact the lochia was no more profuse than after a normal labor.

The smoothness and definiteness of the operation, as opposed to the usual delivery with its hurried dilatation and quick version—and it must be quick—performed in the midst of a hemorrhage sometimes profuse, with the added dread of the postpartum period and its possible hemorrhage and probable morbidity, certainly commend it.

The statistics for this method subsequent to 1905 are the best recorded for any method, but setting statistics aside and considering the method on its merits, we may say that: (1) It avoids all separation of the placenta before the birth of the child and hence the fetal mortality should be practically nil in cases in which the child is alive and viable before operation. (2) It avoids absolutely all lacerations of the cervix which play such an important part in the mortality and morbidity of these cases. (3) It avoids the complete dilatation of the cervix, which, in cases of placenta praevia, predisposes to postpartum hemorrhage, even if there is no laceration, since the lower uterine segment has a very imperfect power of contracting. (4) The operation is not made more difficult by the presence of a placenta praevia but rather made easier, inasmuch as the placental site is usually not incised. If the patient is in a favorable condition for operation, i. e., is seen in time, the mortality for the mother should be no higher than that attending Cesarean section in general, and this cannot be said to be more than four percent at most, at the present time. It is unfortunate that we should be prejudiced against this procedure by statistics, most of which were obtained from cases handled when the mortality of Cesarean section, per se, was enormously higher than at the present time. Furthermore, I do not believe that failure to hear

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the fetal heart should necessarily furnish a contraindication to this procedure, inasmuch as the result to the mother alone may be decidedly better than by other methods.

The vaginal Cesarean section in cases of placenta praevia has been advocated chiefly by Bumm, and Dührssen. Bumm has had the largest experience with it and claims that the bleeding is not greater than in vaginal Cesarean for any other condition so that the danger to the mother is not increased. This method allows immediate extraction of the child and thus lowers the fetal mortality considerably, though with the added risk to the child always attending versions and breech extractions it cannot be said to compare favorably with the results to be obtained for the child by the abdominal operation. The chances of the child are further lessened when it is necessary to incise the placental site. Of 12 cases of vaginal Cesarean section in placenta praevia reported from Bumm's clinic 11 were performed by Bumm, with no maternal mortality; one woman delivered by Helmboldt died. This patient was brought to the hospital in a condition of profound anemia and shock. Commenting upon the operation Bumm says: "The bleeding from the incised surfaces is not difficult to control. I have had a perfect feeling of safety against hemorrhage during the operation and believe that the vaginal hysterotomy may prove to be life-saving in cases in which women have already lost much blood before the operation. I believe that the risk in dilating the cervix in placenta praevia, no matter how performed, is very great."

In these twelve cases six children were born alive, a mortality of 50%, which does not appear very good, but it must be said that of the six stillborn babies only one weighed over 3 lbs. (3⅓ lbs.) The method, recently advocated by Miller of Pittsburg, of ligating the uterine arteries, has been used too little to allow of any definite conclusions, but does not appeal to me as a rational procedure since the babies are almost surely sacrificed. Miller reported 14 cases in which this was done with the loss of one mother and all the babies.

Experience has shown that the period after the delivery of the child has proved almost equally as fatal as that of the delivery. This is due to a large extent to the deep lacerations in the cervix caused by the usual methods of delivery, and would thus be avoided by delivery from above.

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In a paper dealing so much with the methods of delivery one must of course not overlook the general care of the patient, the combatting of the effects of previous hemorrhage by saline infusions or preferably the direct transfusion of blood. The latter will undoubtedly in the future play a considerable role in the management of placenta praevia.

Let me emphasize the important fact that in cases of suspected placenta praevia all examinations and temporizing procedures should be performed under the strictest aseptic precautions so that there will be no contraindication to using any method deemed best, from fear of possible infection.

Mention has been made of the danger of air embolism in cases of placenta praevia, and Ahlfeld has called attention to the importance of carrying out all treatment with the patient in the dorsal position as a precaution against this possibility.

To give a brief summary, we may say that in the cases of so-called low implantation of the placenta and the milder cases of lateral placenta praevia, with a normal presentation and the presence of labor pains, simply rupturing the membranes often proves an efficient method.

In the central variety and also the more marked cases of partial placenta praevia, with or without a rigid cervix, and in all cases in which there is rigidity, the classical Cesarean section offers the best results for the mother and the child. The mortality of this operation for placenta praevia in properly selected cases should be no higher than that of Cesarean section in general, which is lower than that obtained by any other method of treating placenta praevia.

In certain cases of the incomplete form of placenta praevia, in which the placenta is not attached to the anterior wall of the lower uterine segment, the vaginal Cesarean section may offer good results since the placental site is not incised, but it must be borne in mind that the chances for the child by this method are by no means as good as when the classical section is performed, but are undoubtedly much better than by methods depending upon dilatation of the cervix. There is also a small number of cases in which, on account of the surroundings of the patient and the facilities at hand, and also the previous handling of the patient, the abdominal operation is out of the question, and in which the vaginal hysterotomy may serve a good purpose.

Of the methods based upon dilatation of the cervix the most satisfactory results for both mother and child are obtained by the

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use of the metreurynter. If for any reason the Cesarean operation cannot be performed the inflatable bag is to be advised and may prove to be very satisfactory in cases in which there is a marginal insertion.

Since the Braxton-Hicks version gives no better results for the mother than the employment of the bag and practically sacrifices the child, it should have a small place in the treatment of placenta praevia.

The accouchement forcé has been abandoned by most obstetricians as giving worse results than either of the preceding methods.

Packing the cervix and vagina offers a splendid method of temporarily checking hemorrhage while preparing for other procedures, removing the patient to a hospital, or improving her general condition: if done under strict antiseptic precautions it should form no contra-indication to the subsequent carrying out of any of the procedures mentioned, including the abdominal operation.

The direct transfusion of blood will undoubtedly have a definite place in the treatment of placenta praevia, perhaps during the actual delivery.

There are so many different points to be considered in the management of placenta praevia, depending upon the circumstances surrounding the individual case, that no one plan can be outlined as applying to all. A proper selection, however, of the various methods at our disposal according to the principles mentioned, as indicated in the case at hand, always bearing in mind the usual cause of the death of the child as well as the chief dangers to the mother, will no doubt result in saving many babies which would otherwise be sacrificed, and fortunately at the same time decrease the maternal mortality.

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The Technic of Cesarean Section.

By GEORGE W. CRILE, M. D., Cleveland

Based on an experience of 15 Cesarean sections performed for pelvic contraction, eclampsia, or placenta praevia performed in the home and in the hospital under the various handicaps of infection, of toxemia, and of exhaustion, I have reached the following position as to technic:

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The operation should, when possible, be performed with the surroundings and facilities that are most effective in the performance of any other surgical operation—that is to say, it should be in a hospital operating room with the trained staff and the surgical facilities at hand. The several principles of the technic differ not in the least from the technic of laparotomies for other purposes, and the results good or bad are determined upon general surgical principles. While the general indications are the same as for all abdominal operations, there are several special points that may well be further discussed. These are: 1 The method of extraction of the child. 2 The choice of operation. 3 The method of closure of the uterus, and 4 The anesthetic.

After the uterus is opened, certain movements in the process of extraction may cause inspiration of the amniotic fluid and in consequence seriously strangle the child. This may be readily obviated by passing the hand well around the child and delivering it with a single movement—preferably by an upward sweep with the hand over the face, and the other grasping some other part. In my earlier cases I fell into this error which was so easily obviated in the later ones.

As to the choice of operation: If there is existing infection, a hysterectomy is the safest, otherwise hysterotomy.

The control of hemorrhage is so simple in either case that little need be said.

As to the closure of the uterus, a careful tier suture is needed —plain gut for the submucous line, continuous light chromic gut for the remainder of the wall, and finally plain gut for closing the peritoneum.

As to the choice of anesthetics: In cases complicated by infection, toxemia, hemorrhage or exhaustion, nitrous oxid and oxygen anesthesia has a decided advantage over ether.

In suitable cases, there is scarcely any operation so safe and satisfactory as Cesarean section.

In favorable cases, the mortality should be no higher than that of plain laparotomies, such as for ovarian and uterine tumors.

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Review of the Progress in Medicine.

Conducted by JOHN PHILLIPS, M. B., Cleveland.

1. The Nature of the Arteriosclerotic Process—Adami.
2. Mechanical Factors in Acute Pulmonary Edema—Miller and Matthews.
3. Some Disorders of the Cerebral Circulation and Their Clinical Manifestations—Russell.
4. Experimental Parotitis—Herb.
5. Thrombosis of the Cervical Anterior Median Spinal Artery; Syphilitic Acute Anterior Poliomyelitis—Spiller.
6. The Occurrence of Remissions and Recovery in Tuberculous Meningitis: A Critical Review—Martin.
7. Discussion of Angina Pectoris—Albutt.
8. A New Sign in Meningitis—Brudzinski.

The Nature of the Arteriosclerotic Process.

Adami (*American Journal of The Medical Sciences,* October, 1909) has classified the main orders of disturbances seen in the aorta and its larger branches—in the vessels, as he terms them, of the elastic type, as follows: (1) The ordinary nodose arteriosclerosis, which shows itself in the slightest cases as a thickening and sclerosis more particularly at or around the origins of the side arteries, as yellowish-white thickenings notably affecting the origins of the series of intercostal arteries. These form, from coalescence in the aorta, projecting flat nodes scattered irregularly. (2) In this form the radials are hardened and pipestem in character, but in the aorta there is an absence of nodose thickening of the intima. The aortic wall is thinned and shows a diffuse dilatation of its lumen especially in the thoracic portion. He regards this as the uncomplicated senile type of this disorder. It is further characterized by the presence, in the common iliacs and the carotids, of slight depressions, tending to have their long axes situated transversely, in fact by the very reverse of the sclerotic nodosities, a giving way taking the place of thickening of the wall. In these cases the smaller arteries are markedly sclerotic with localized areas of intimal fibrosis, with hypertrophy and fibrosis of the middle coat and often with well pronounced periarterial fibrosis. The essential change in the radials and other middle-sized arteries is a calcification of the media, which is apt to be preceded by a marked hypertrophy of the middle coat. He prefers to call this type of arteriosclerosis Moenckeberg's sclerosis, Moenckeberg having described its most striking features.

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(3) This type is the syphilitic. In this type in the ascending aorta and arch we find manifestations simliar to those seen in the ordinary nodose arteriosclerosis. The nodes are liable to lie in groups and in their earlier stage are large, succulent with a semitranslucent or hyaline appearance; they have little tendency to atheromatous and calcareous change, but on the contrary exhibit a later scarring or central depression with some puckering. The primary disturbance here is a subacute mesaortitis with small celled infiltration around branches of the vasa vasorum and absorption of the elements proper of the media. Coincidently there is an overgrowth of the intimal tissues, and when, as a result, the deeper portions of the overgrowth exhibit necrotic change and degeneration, then the underlying inflammatory granulation tissue advances new capillaries into the necrotic area. The result is an absorption of the degenerated material, replacement by cicatricial tissue, shrinkage and scarring.

In some cases of syphilitic arteriosclerosis, following a primary degeneration of the media, there is thickening of the intima and adventitia, with the development of a nodose intimal sclerosis, while in others there is an atrophy of the intima with aneurysm formation. Adami believes that in the former cases the thickening with the regular development of layer after layer of new connective tissue is non-inflammatory and is of the nature of strain hypertrophy, just as increased pull or strain of muscles within certain limits upon their bony insertions, leads to an increased development of bony ridges. In the other cases there is an atrophy of the intima, because the destruction of the media is so widespread that there is overstrain on the other layers, and hence the atrophy and aneurysm formation.

He believes that these deductions can be applied to the ordinary non-syphilitic nodose arteriosclerosis and to the Moenckeberg type.

Mechanical Factors in Experimental Acute Pulmonary Edema.

Miller and Matthews (*Archives of Internal Medicine*, October, 1909) after reviewing the literature summarize the cardiovascular changes observed in acute pulmonary edema produced by various chemical agents and find a striking similarity. Generally there is a fall in the systemic pressure and a rise in pressure in the pulmonary artery. At the same time the right

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side of the heart becomes dilated, the left remains normal in size or, as some have maintained, contracted. Pressure changes in the pulmonary artery are not necessarily associated with corresponding changes in the left auricle, since a rise in pressure in the pulmonary artery may be associated with a fall in pressure in the left auricle or vice versa.

The authors undertook some experimental work with a view of determining the following questions: (1) Whether acute pulmonary edema, produced by other agents than those already tried by previous observers is associated with a rise in pressure in the pulmonary artery. (2) To repeat the experiments with acetic ether, since in the previous work acetic ether had been an exception, inasmuch as it produced pulmonary edema without an increase in pressure in the pulmonary artery. (3) The value of various agents in controlling the development or modifying the course of acute pulmonary edema.

From their experimental work they reach the following conclusions:

(1) When pulmonary edema develops after exposure to nitric oxid or ammonia there is no evidence that mechanical factors play a role; i. e., they were unable to detect any evidence of disproportion between the working power of the two sides of the heart.

(2) The acute pulmonary edema following inhalation or intravenous injection of acetic ether is usually associated with evidence of disproportion in the working power of the two sides of the heart, as there is a fall in the systemic and a corresponding rise in pressure in the pulmonary artery. When large doses of acetic ether are injected intravenously, pulmonary edema may occur without evidence of disproportion in the working power of the two sides of the heart, thus showing that such changes are not essential for its appearance. It would appear, therefore, that mechanical factors are not responsible for edema.

(3) In the acute pulmonary edema produced by iodids, there is in the beginning a marked rise in pressure in both the systemic and pulmonary circulation; later the systemic blood-pressure falls, but the pressure in the pulmonary artery remains high. This disproportion in the working power of the two ventricles was present in every instance; it would, therefore, appear from their experiments that the edema might be explained by mechanical agents, although not necessarily so.

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(4) The intravenous injection of adrenalin chlorid, when preceded by ligation of the thoracic aorta, causes pulmonary edema. Apparently as a result of the great increase in the systemic blood-pressure after such a procedure, the left ventricle is unable to empty itself completely; stasis and rise in pressure in the pulmonary artery follows. This is perhaps the mechanism of acute pulmonary edema in nephritics with hypertension.

(5) In the mechanical edemas, therapeutic measures to be of value should tend to equalize the work of the cardiac chambers. This may mean the use of vasodilators in some instances, in others the use of drugs that stimulate the heart activity.

Some Disorders of the Cerebral Circulation and their Clinical Manifestation.

A. E. Russell in the Goulstonian lectures (*Lancet,* Apr. 3, 10, 17, 1909) has brought forward some very able arguments to show that the pathological condition which gives rise to epilepsy is anemia of the brain. He first speaks of syncopal attacks, the fundamental factor in the pathology of these being a diminution in the volume of blood passing through the brain. This may be due either to a vasodilatation in the splanchnic area, or to cardiac inhibition, or both. He mentions the fact that some people display a great instability of the vasomotor system, a condition to which S. Solis Cohen has applied the term vasomotor ataxia. Russell points out that a sudden depression of the normal vasomotor tone in the splanchnic area leads to a rapid accumulation of blood in the capacious vessels of that region; if only momentary in duration the result is merely the sudden sinking sensation experienced at the pit of the stomach, so common after an unexpected noise or fright. If of longer duration the preliminary sensation or aura is succeeded by a faint. He next proceeds to describe a type of attack in which vagal and vasomotor symptoms are prominent, and in which consciousness though modified is not of necessity lost. The majority of these cases, because of the obvious vasoconstriction of the cutaneous vessels show coldness of extremities, pallor of face, and complain of numbness and tingling in the hands and feet. A feeling of suffocation and orthopnea is often noticed and is probably due to the engorgement of the pulmonary vessels or to bronchial spasm. Occasionally a fainting fit is preceded by definite subjective sensations

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or aurae and Sir William Gowers has recorded cases in which repeated syncopal attacks have passed into epilepsy. In some attacks of syncope there is marked cardiac and vascular instability with the development of a series of symptoms depending on these cardiac and vasomotor changes; and many of these symptoms are identical with epileptic aurae, though more prolonged. The degree of consciousness preserved by these patients also varies; in some it is only modified, in others it may almost vanish, and in others complete unconsciousness may develop. Russell next gives very good evidence to show the occurrence of cardiac arrest in idiopathic epilepsy. He refers to a case of his own in which, at the commencement of an epileptic attack, there was a temporary arrest of the heart's action, and Moxon, Hilton Fagge and others have recorded similar cases. He believes that the cardiac arrest is due to vagus inhibition of the heart and may be brought about by a widespread vasoconstriction.

In epilepsy he claims the vasomotor system is unstable and an irregular pulse is frequently met with in epileptic patients. As a further proof of his contention that derangement of the cerebral circulation is responsible for epilepsy, Russell maintains that this circulatory failure offers a more reasonable explanation of the phenomena of the disease than any other hypothesis yet brought forward. That a partial cerebral anemia is capable of giving rise to the phenomena of an epileptic aura has been demonstrated experimentally by Leonard Hill, who says "I have twice produced clonic spasms in myself by compression of one carotid. The first effect on applying the compression was a sensation in the eye on the same side; then there followed a sensory march of formication down the opposite side of the body. This began in the fingers, spread up the arm, then down the leg. Finally clonic spasms of the hand occurred, accompanied by an intense feeling of vertigo and alarm." In heart block in proportion as the period of cardiac asystole increases, varying degrees of cardiac failure manifest themselves producing transient unconsciousness indistinguishable from that of petit mal, or attacks with very temporary spasm, or finally definite epileptic fits.

Dr Russell refers briefly to uremic convulsions. He states that under the severe strain imposed upon it in working against a high blood-pressure, the heart may rapidly fail in chronic nephritis. Should this occur or should the vasomotor center fail rapidly, it is clear that the cerebral circulation must fail equally rapidly when the intracranial tension is pathologically high. In-

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stead of headache and somnolence, gradually developing into coma, a more sudden unconsciousness would result and convulsions would readily be produced.

He quotes Mott who has shown that the essential changes in the brain in status epilepticus are: (1) Great venous congestion and stasis. (2) Edema of the brain and marked distention of the perivascular lymphatics, with flattening of the convolutions and increased vascularity to the naked eye. Inasmuch, however, as the brain is a closed cavity venous stasis and edema must be associated with a corresponding arteriocapillary anemia.

It will be seen in these lectures that Russell maintains that the fundamental factor underlying both the ordinary faint and the epileptic fit is cerebral anemia. The difference between the two is one of degree, rather than of kind.

Experimental Parotitis.

Isabella C. Herb (*Archives of Internal Medicine*, September, 1909) reviews the work previously done on the bacteriology of mumps, beginning with the noteworthy studies of Laveran and Catrin, who in 1893 described a diplococcus in the exudate, which they obtained by aspiration of the parotid gland. They found this organism 67 times in 92 cases; 39 times the diplococcus was obtained in pure culture.

They also found an identical organism 13 times in 16 cases of secondary orchitis; and 10 times in 15 examinations of blood-cultures taken during the height of the fever. Injections of this diplococcus into the testicles of rabbits produced an inflammation which lasted about eight days. Mecray and Welch in 1896 and Michaelis and Biem in 1897 succeeded in isolating a diplococcus from the saliva from Steno's duct. Other investigators whose work the author has reviewed are Tessier and Esmein in 1906 and Korentschewsky in 1907.

The results of all these investigators are so similar that there is little doubt but that they were dealing with the same diplococcus. Herb obtained a similar diplococcus from the parotid gland, the lung, testicle, bile, cerebrospinal and pericardial fluids of a man who had died from a right suppurative parotitis with bronchopneumonia following an attack of mumps. Cultures of Staphylococcus albus were also obtained from the parotid which accounts for the suppuration.

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The principal distinguishing or characteristic features of the diplococcus isolated from the case of mumps and the conclusions of the author are the following: Gelatin is very slowly liquefied. In broth a slight cloudiness is produced in 24 hours; later a tenacious deposit forms in the bottom of the tubes. Milk is soured in 24 hours and coagulated in 48 hours. Potato produces a grayish white abundant growth. On blood-agar a slight zone of hemolysis appears around the colonies. Agar cultures show pearly white, tenacious pin-point round discrete colonies. There is no production of indol. The organism occurs most frequently as a diplococcus, occasionally in small groups or chains of from four to six elements. It is non-pyogenic.

When injected into Steno's duct in monkeys and dogs, this diplococcus causes a diffuse non-suppurative parotitis, the infiltration being composed largely of mononuclear cells and occasionally also an orchitis of a similar character.

During the course of this experimental parotitis the opsonic index for the diplococcus shows a marked rise, reaching the highest point at about the time the parotid swelling is most marked. In one case of human mumps (the only one studied) a similar rise of the opsonic index for this organism took place. There is consequently good reason to regard this diplococcus, which corresponds well with the description given by Laveran and Catrin of the diplococcus isolated by them from cases of mumps, as the actual cause of mumps and the disease produced in dogs as genuine experimental mumps.

Thrombosis of the Cervical Anterior Median Spinal Artery; Syphilitic Acute Anterior Poliomyelitis.

Spiller (*Journal of Nervous and Mental Diseases,* October, 1909) reports the case of a man who in 1901, four years previous to his paralysis, had what was supposed to be spinal meningitis. He recovered but probably had as a result thickened blood-vessels of the spinal cord. From that time on he enjoyed excellent health and was employed in an ice house lifting blocks of ice weighing 100 pounds. One day after having lifted 4 or 5 blocks he began to have pain between the shoulders and felt numb and weak in the upper extremities. He felt weak and numb in the lower limbs 10 or 15 minutes later, and was brought to the hospital. A note of his condition made two days later showed total paralysis in the right upper limb, and almost complete paralysis

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of the left upper limb; he was able to flex the forearm on the arm, but could not extend it, and he had some power of elevation of the shoulder. The lower extremities were weak in all movements but there was, however, no pronounced palsy. Breathing was entirely diaphragmatic. Hypalgesia was noted between the nipples and the clavicles and also in both the upper extremities. He had retention of urine with overflow, and there was no control of the bowels. Patellar reflexes were preserved and the Babinski sign was not obtained. When seen by Spiller one month later he had recovered largely the use of his lower limbs but they were somewhat spastic. Tactile sensation was normal everywhere, patellar reflexes were exaggerated and Babinski reflex was present on the right side. He had much impairment of sensation of pain and temperature in the upper part of the thighs, over the trunk as high as the first or second rib and in both upper limbs. He had incontinence of the bladder and rectum. He was almost completely paralyzed in the upper limbs and these limbs were much wasted. He died in Nov. 1908 and a great thickening was found of the anterior spinal artery and the branches coming from it, in the eighth cervical and first thoracic segments. Many of the vessels were entirely occluded. The softening was intense in the first thoracic and eighth cervical segments as shown by the presence of numerous fatty granular cells and a few minute hemorrhages. The anterior horns were softened above these regions as high as the fourth cervical segment. The lesion implicated the anterior horns and the whole anterior part of the cord in advance of the crossed pyramidal tracts and the extreme anterior part of the posterior columns. The pyramidal tracts were partially degenerated. The round-celled infiltration of the pia, together with the proliferation of the intima of the anterior spinal artery and its branches in the lower cervical swelling indicated syphilis as the cause of the lesion.

This case is very important in showing that thrombosis may occur in a very limited distribution of spinal vessels, and in the fact that syphilis may be a cause of anterior poliomyelitis. It is a contribution to the position of the sensory tracts in the cord. Spiller claims that this condition produces a symptom-complex capable of diagnosis without autopsy. The symptoms vary with the level of the lesion. This is the only case on record in which thrombosis limited to a small portion of the anterior cervical supply has been demonstrated by necropsy.

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The Occurrence of Remissions and Recovery in Tuberculous Meningitis: A Critical Review.

Martin (*Brain*, August, 1909, p. 209) has made a critical review of the cases of tuberculous meningitis in which recovery has been reported. Many cases he has been compelled to exclude because the evidence was insufficient to justify the diagnosis. However he states that recovery is more frequent than has generally been believed, since no fewer than 20 undoubted cases have been recorded since 1894, while other cases of recovery have been published in which the same definite proof of the nature of the disease has not been afforded, but some of which probably were true cases of meningitis. In the non-fatal cases either the resistance of the individual was so much greater than usual that the disease was checked early in its course, or the virulence of the tubercle bacilli was so much less than usual that the lesions in the meninges became localized and later underwent fibrous change. These lesions may at a later period form the focus of a fresh infection, which usually terminates fatally, and that consequently the prognosis in these cases of recovery must be guarded. No treatment up to the present time has had any specific effect in promoting the favorable termination of the disease.

Discussion of Angina Pectoris.

Sir T. Clifford Albutt (*British Medical Journal*, October 16, 1909) shows quite conclusively that none of the prevailing theories as to the causation of angina pectoris are satisfactory. He constructs a theory of his own to account for this condition. He says that the causes of angina pectoris must be compatible with complete recovery, and yet be such as may prove swiftly fatal. An inflammatory or subinflammatory lesion occupying the suprasigmoid portion of the aorta with its investment fulfils these conditions. This is best seen in suprasigmoid syphilis where we find an infiltration of the coats of the vessel extending in anginous cases from the adventitia, or at any rate involving this investment. On the inner surface we may see a cushion-like elevation of the wall often of more or less annular disposition; this, if untreated will extend downwards to the coronary mouths and to the valve, producing perilous and incurable mischief. The older the patient and the more this kind of damage, especially in the coronary area, the more probable is sudden death; the less able is the heart

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to withstand a sudden inhibition. Albutt believes that death in angina pectoris is due to vagus inhibition of the heart. Roy has shown that to stab the aorta in the suprasigmoid portion may stop the heart suddenly; more surely in old animals. Albutt suggests that the investments of this portion of the aorta are furnished with Pacinian bodies whose function it is to indicate pressure changes to their segments of the cord, and that if these bodies, and their pain columns, be submitted by disease to a morbid summation of stimuli the corresponding spinal segment, or—in case of longer or intenser irritation—spinal segments, are thrown into a state of agitation which is expressed in greater and lesser degrees as pain. In support of this theory, he refers to the work of Dogiel, who has found Pacinian bodies in the connective tissues of the pericardium and in the investment of other parts about the collar of the heart and large vessels. In the question of treatment one thing he lays stress on is the use of atropin to guard against vagus inhibition. This admirable paper should be read in its entirety by all physicians.

A New Sign in Meningitis.

Brudzinski (*Archives de Médicine des Enfants,* October, 1909) a short time ago called attention to a sign (the reflex contralateral) that was quite constant in the epidemic and tuberculous forms of meningitis, viz., that on passive flexion of one leg the other leg was extended. In this paper he describes a new sign which he terms "Le Signe de la Nuque" (the sign of the neck) which consists in a flexion of the thighs on the pelvis, of the knees and ankle-joints when the neck is passively flexed. The value of this sign can be judged from the following statistics which Brudzinski has published. In 42 cases of meningitis of different forms he found Kernig's sign present in 57%, Babinski's sign in 50%, the reflex contralateral in 66%, and the sign of the neck in 97%. He found the sign of the neck present in two cases of pneumococcus meningitis in which neither Kernig's sign nor Babinski's sign was present.

(Since reading the above article the writer has seen one case of tuberculous meningitis in a child three and a half years old in which the sign of the neck was quite marked.)

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EDITORIAL

Medical Research and Practise.

We all admit in a general, theoretical sort of way that a close relation exists between fruitful medical research and efficient medical practise. As yet, indeed, the medical investigator, at least the investigator who uses animals for his experiments, is in no immediate danger of incurring the woe pronounced on him whom all men (including, we must presume, all women) speak well of. But signs are multiplying that even outside the ranks of the profession men of light and leading are coming to appreciate the prodigious impulse which practical medicine has received from the work of the laboratories in the four or five decades during which laboratory research in the medical sciences has been pursued in anything like a systematic way and on anything like an adequate scale. This interest of the intelligent lay-

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man has at times become even painfully acute, as must needs be in the presence of problems of such surpassing significance for the individual and the race as many of those which have engaged and are now engaging the attention of numerous laboratory workers. A recent utterance of that many-sided man and educator, President Eliot of Harvard, in the form of an address delivered at the Massachusetts General Hospital on the sixty-third anniversary of "Ether Day," on "The Fruits of Medical Research with the Aid of Anesthesia and Asepticism." (*Boston Medical and Surgical Journal,* October 28, 1909) ought to be read and studied by everyone who is still in doubt whether, after all, any real and ripened fruit has yet been gathered from that tree. In the development of his subject, the speaker was led almost inevitably to consider the objections commonly raised against experiments on animals, even with the aid of anesthesia and an aseptic technic, and the doubts often suggested as to the practical value of knowledge derived in this way. These objections are usually so illogical, or at any rate so inconsistent with the everyday practise of the objector in his own relation to the animals which he kills for food or sport, or keeps for his pleasure or profit; the doubts about the usefulness of such research seem so often to be fostered by mere prejudice when they are not founded upon sheer ignorance; the mental darkness of the doubter is sometimes so preternaturally complete, even the stray lights which simple common sense might radiate upon it all suppressed, as if by the artistry of the father of lies himself, that we confess to a feeling of weariness when the so-called "vivisection" controversy emerges under any *alias* whatsoever.

At the same time, it is certain that much of the opposition to medical research does arise from genuine lack of knowledge of its aims, its methods, its actually achieved results, and its abundant promise of still greater triumphs in the future. It is, therefore, matter for congratulation that such a man as Dr Eliot, with all the authority of a great academic office and of talents and attainments which have added luster to his office, should in the fulness of his years and knowledge, take up the rôle of missionary and apologist in the cause of medical investigation. It is much to be wished that in some form or other this masterly address should be made more easily accessible to the circles *in partibus infidelium* where, to use a convenient journalistic phrase, it might "do most good." We can hardly imagine a heathen man, though we can perhaps a heathen woman (even outside of the

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Bay State), who could remain entirely unshaken by such a missionary. Even to those who are perfectly familiar with the subject it is an intellectual treat to follow this old man eloquent, as with characteristically tranquil analytic touch he passes from point to point of his subject, serenely dividing the false from the true.

Three doubts, says Dr Eliot, are often suggested concerning the value and the permissibility of animal experimentation. First, the doubt whether, as a matter of fact, there is any close relation between medical research and medical practise, whether biological investigation has really contributed to the success of the medical art. Second, the doubt (which, indeed, is implied to some extent in the first query) whether the search for truth through experiments on animals is justifiable when it is not certain, or at the time perhaps not even probable, that the scientific results, though true as knowledge, can have any effect whatever on human well-being. Third, the doubt whether, under any circumstances, even where the advantage to man is great and sure, experiments are justifiable "at the expense of the comfort, joy or life of animals," in however great a measure actual suffering may be reduced or prevented by anesthesia and asepticism.

The space at our disposal will not permit the consideration of the whole discourse in any detail. We shall, therefore, take as our text mainly the answer which Dr Eliot gives to the third query. It is the answer which the common sense of mankind has always given and always will give when entirely analogous questions are presented to it concerning the use of animals for other purposes. Man always has used the lower animals for the advantage of his own species without stint and without scruple. He kills them for food or for their skins, or because he thinks them harmful, or because he thinks them useless, or because their shape, color or architectural plan offends or repels him, because they have what he is pleased to consider a surplus of legs or because they have no legs at all. He limits the freedom and interferes with "the comfort and natural joys" of hundreds of millions of domestic animals. He suppresses their sexual functions by wholesale mutilation so that they may fatten more quickly or be broken more easily to work. He subjects them, apparently without any qualms of conscience, to the "primal curse of labor," which he thus transfers in great part from himself to his animal drudges. He separates them from their young so that his table may be provided with milk and with veal or sucking

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pig, while he visits the crime of kidnapping his own offspring with heavy penalties, sometimes with death. All this and much else he does without, excepting in rare instances, so much as asking himself by what sanction he thus treats the whole animal creation as his property. A divine permission, a heavenly charter which grants him dominion over all his inferiors in the animal scale may, on occasion, be raked up from the dusty archives of his traditional theology. But the real sanction, as everybody feels who actually faces the question, is the sanction of self-interest, not necessarily the interest of the individual alone but, through that, the interest of the species. Man has climbed to his present position in the world by using all the advantages possessed by him over his inferiors, at one time his competitors, in the animal kingdom. These advantages, slight at first, are now enormous. His slow ascent has been won by constant fighting at first for mere existence, later on to secure and improve his position. He has fought for his own hand for ages upon ages. He has arrived. His claim of dominion over the creatures is not the result of abstract reasoning upon "moral" principles. As a matter of fact, it is neither moral nor immoral, it is unmoral. It has no moral quality any more that the claim for food of the hungry stomach, which accepts even stolen bread as "right" while it rejects the most honestly gotten stone as intolerably "wrong." It is in truth a tradition of the blood, an organic necessity arising out of the history of the evolution of man to claim and use all the spoils of victory, whether won over the forces of nature or the other living inhabitants of the world, insofar as they are necessary to prepare future victories for himself. This is the reason why in his dealings with the lower animals, however he may have condemned the infliction of *useless* suffering, man has always in the last resort believed in his right to regard them "with an eye single to his own advantage," and has acted upon this belief. "It cannot be seriously doubted," says Dr Eliot, "that this has been and still is a rational state of mind in the human race." "And," he continues, "if the educated public could only see clearly the immense benefits to mankind which have already come and may reasonably be expected to come in much larger amount from the experiments on animals which are necessary to the progress of medical research, if the public could only clearly realize the saving of human suffering and woe which has already resulted and is sure to result in still greater proportion from the sacrifice of a very limited amount of animal comfort and joy, the world would

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hear nothing more of objections to medical research." This is the kernel of the "vivisection" question so far as the attitude of the immense majority of the lay public is concerned. Once they are convinced that animal experimentation is highly useful to the practical art of medicine, their objections will not only cease, but will be changed into encouragement and support. Without forgetting that the righteous man is merciful to his beast, they will understand how cruel would have been the tender mercies of the fanatical opponents of medical research to the hundreds of thousands of children, whose lives have already been saved by the diphtheria antitoxin and to their parents, had these misguided persons possessed the power, as they had the will, to prevent the experiments which led to that great discovery, in order to save the lives and spare a certain amount of suffering to a number of guineapigs and a certain amount of occasional discomfort to a number of horses, leading, by comparison with their workaday fellows a life of luxury and ease. "The tenderhearted men and women who object to animal experimentation have no vision of the relief of human beings from agony and woe which has come out of animal experimentation. If they had any such vision, they would themselves manifest extraordinary cruelty and inhumanity in opposing medical research." In dealing with the first and second heads of his discourse Dr Eliot brings forward an array of achievements based on observation and experiments on animals which ought to open the eyes of all except the wilfully blind, and which constitute the very foundations of the practical arts of medicine and surgery today. From Harvey's discovery of the circulation of the blood, and Jenner's discovery of vaccination against smallpox, probably the most important result of combined observations on animals and man in the history of medicine, down to the latest applications of bacteriology and protozoology to sanitary science which have brought the ordinary infectious diseases of the temperate zone so much under control that men have begun to dream of the possible extirpation of some of them at least from the world, as hydrophobia has been extirpated in Great Britain, and which bid fair to rid the tropics of their deadliest scourges, malaria, yellow fever, the sleeping-sickness and other plagues,—everywhere research has been the seed from which sprang the plant of practise. Serum therapy, the greatest triumph of which, in the treatment of diphtheria, has been already mentioned and which has recently scored a fresh success in the treatment of cerebrospinal menin-

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gitis, not only originated in experiments on animals but is absolutely dependent upon them for the preparation and standardization of the necessary material. The same is true of that substitution therapy whose first fruits were the employment of thyroid substance in the treatment of myxedema and which is probably destined to play an important rôle in the therapeutics of the future. In pharmacology the relation of the introduction of new remedies to animal experiments is even more striking: In his evidence before the Royal Commission on Vivisection, which made an exhaustive inquiry in England a year or two ago, Dr Cushny stated that "apart from the local antiseptics such as carbolic acid, iodoform, etc., which are used to act not on the patient but on his parasites, and whose usefulness could therefore be discovered only by applying them to these parasites, the only drug of even mediocre importance introduced in the last forty years by methods other than those of animal experimentation is pilocarpin, which was adopted because it was known to be used in South America as a sudorific." Chloral, sulphonal and all the modern soporifics; cocain, eucain, stovain and all the local anesthetics; all the modern antipyretics; strophanthus among the heart tonics; amyl nitrite, nitroglycerin and all the vascular dilators; adrenalin and all the vascular contractors; caffein and theobromin among the diuretics; apomorphin, the most reliable and convenient emetic; and many other valuable remedies have during this period been introduced after exhaustive tests on animals, and without these tests would never have been used on man. Truly the harvest has been great. Other and even wider fields are steadily ripening to the harvest. We may well ask with Dr Eliot whether "the assaults of ignorance and misdirected sentimentality" are to be allowed to prevent it from being gathered or to cause it to be gathered late?

The Ohio State Sanatorium at Mt. Vernon.

The State Tuberculosis Sanatorium at Mt. Vernon was turned over to the trustees with proper ceremonies, October 27, 1909. The institution will be opened for the reception of patients about December first. For four years and more we have anticipated this event. If the delay is in any way responsible for the result we have not waited in vain, for the sanatorium is without doubt one of the most complete in existence. The site is attractive and appropriate and fulfils all the conditions of an ideal situation.

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The grounds include 350 acres, much of which is heavily wooded. The buildings, Tudor-Gothic in style, are well and beautifully constructed, admirably placed and form a striking group which seems almost to belong to the ground out of which it rises.

The administration building is very spacious and has a fine assembly room for recreation, besides the usual complement of offices and living rooms for the staff. The dining room is a large vaulted baronial hall with high wainscotting and charmingly placed windows and recalls some old-world banqueting chambers. It is the special feature of the place architecturally and is unequaled in any sanatorium. The prototype of this room is one of the halls in the castle at Edinburgh and the idea is admirably carried out. The plan is the now prevailing American one of central control building for administration and open wards for patients, so that the inmates will be compelled to be constantly in the open air. There are, however, two large cottages which separately accommodate 24 patients and in which each person has his own room.

The tendency now is to reduce as much as possible the cost of building and administration. The number seeking relief is so great and the number of institutions proportionately so small that the means for maintenance and extension should be most carefully conserved. There should be, however, a few model institutions such as this one at Mt. Vernon, for while the cost has been very large there are large opportunities in consequence. Approximately $550,000.00 have been appropriated for construction and $35,000.00 for land. Each open air ward cost $8,500.00 and accommodates 30 patients. Each cottage cost $25,000.00 and provides for 24 patients. All the buildings are connected by underground passageways. All heating is, generally speaking, by hot water radiation. All the water comes from springs on the grounds and is of excellent quality. Natural gas is also in abundance and supplies the heating power. Disinfection is by high pressure steam and the plant for effecting this is large and complete. The sputum will be consumed in a gas furnace. The perfection of the many details is due to the care and foresight of the architect, Mr. F. L. Packard.

It will be interesting to watch the result of the rapidly developing shack system for patients. Every tuberculosis case does not thrive in the open air and it is a doubtful policy to limit an institution to this method alone. Moreover when a man is to live for six months in a place he wants a home, a corner of his own in

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a ward or a room and must have it to be contented. Yet almost all resident medical directors testify that the majority of patients prefer the life in the lean-to. At Mt. Vernon there is opportunity to test both methods.

When the institution is completed 300 patients can be accommodated. It is expected that 10 to 20% will be admitted free and that the rest must meet a charge of $5.00 per week. The sanatorium will thus provide a place not for the very poor and improvident but for the large middle class for whom usually no provision is made. The conception, plan and development of the institution have been on a broad scale and the result is most satisfactory. Mt. Vernon well deserves a visit both for the completeness and for the beauty of its institution. Unquestionably the Tuberculosis Movement will receive a great impetus from this new Ohio establishment. It is an evidence of the fact that the State has taken up the question seriously and this alone must impress the people.

At the conclusion of the official function the meeting was generously turned over to the State Tuberculosis Society and Dr J. H. Lowman called to the chair. At this session the ways and means best adapted to the control of the disease in the State were considered and it was decided that an executive secretary was the first need. It is certainly a rare circumstance when the State at a formal function gives such opportunity to a volunteer unofficial society. It demonstrates the harmony that exists between all the forces in the State that aim at the one object, viz., the extinction of the disease. As Dr White, who gave the formal address, said, everything is ready in Ohio for strong concerted action. If the cooperative spirit that has been so marked a feature in the Cleveland movement can thus be made effective in the State at large much can be accomplished.

The State Health Office has always been very sympathetic with every little effort and tried to nourish every budding attempt to antagonize disease. A large, State-wide, strong organization is the consummation now earnestly desired and will naturally come through the State Society, the State Health Office and the State Sanatorium.

The Experimental Transmission of Acute Poliomyelitis to Monkeys.

Acute poliomyelitis belongs to that type of acute infectious diseases of which sporadic cases now and then occur in various countries and which, at variable intervals, assume in some locali-

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ties greatly increased frequency and become epidemic and even pandemic. This disease is now in epidemic prevalence in several countries. The present pandemic began in Norway and Sweden in 1905. In the years 1905 and 1906 there were reported in the former country 1,053 cases with 145 deaths and in Sweden the number of cases was still larger. The disease has spread to some degree to other European countries. It made its appearance in America in 1907 when cases broke out along the Atlantic Seaboard. At the present time the disease is widely epidemic in Minnesota, where it has been well studied by the efficient Board of Health.

Our knowledge of the disease has been greatly advanced in the last few years by the masterly studies of its epidemiology and clinical history of Wickam of Sweden and by the clinical and pathological studies of Harbitz and Scheel of Norway Perusal of the writings of these three workers, and those of Cadwallader of Philadelphia and of Bossoe of Chicago, must convince the most skeptical that the disease is an acute infection with definite lesions, which may affect, primarily or secondarily, almost any part of the brain or cord. Clinically it may assume not only the generally recognized acute anterior poliomyelitis, but such apparently distinctive types as the cerebral infantile palsy of Strümpel, the bulbar palsy of Duchenne, Landry's paralysis (the so-called acute ascending myelitis), transverse myelitis, and the ophthalmoplegia of Wernicke, but various abortive forms.

Harbitz and Scheel have shown conclusively that the disease begins primarily as an inflammation of the pia, whence it extends along the blood-vessels into the cord and brain in the form of an exudative inflammation, so that in a fatal case there is found an acute inflammation of the entire cord with its pia, of the entire bulb and pons, and often of the pia and cortex of the brain as well. These observations have been confirmed in this country by Cadwallader and by Bassoe. Anatomically speaking, the disease is, therefore, an acute lepto-meningo-encephalo-myelitis.

The etiology of the disease is unknown, though Giersvold obtained a diplococcus from the cerebrospinal fluid in 12 cases, and similar cocci have been found in a few cases by other observers.

By the work above outlined, our knowledge of this interesting disease was brought to the point where its experimental study on lower animals was the next logical step. One was therefore not surprised to learn last May that Landsteiner and Popper had

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succeeded in transmitting the disease to monkeys. This they accomplished in two monkeys by intraperitoneal inoculation with the spinal cord from two fatal cases of poliomyelitis. They were not able to transfer the disease to other monkeys.

Flexner and Lewis (*Journal of the American Medical Association,* Nov. 13, 1909) were more successful, for they not only reproduced the disease in monkeys, but were able to carry it through a series of these animals. Their inoculations were intracranial. Microscopical examination of the spinal cord of the affected monkeys showed, without exception, changes similar to those of poliomyelitis in man.

Thus the infectious nature of the disease is proved beyond question.

The work of Flexner and Lewis opens up a new field full of possibilities and one which will no doubt be carefully tilled. Among the questions upon which much needed light may be thrown in the near future are the portals of infection and modes of transmission, the etiology and serum diagnosis and immunity.

We owe another debt to the Rockefeller Institute for Medical Research, the only institution in the country with the possible exception of the Hygienic Institute in Washington, prepared on account of its resources, properly to work out by the experimental method the many interesting and important problems of this disease. W. T. H.

Bacteriology in the Public Schools.

Among the many factors to be considered in the education of children, one of the most important to those interested in the general hygienic training of the public is the amount and character of the sciences allied to medicine which should come into the regular curriculum in the public schools. There is no agreement in the schools of the various parts of the country, or even of the different portions of any State, though the general idea appears to be growing that something of the sort is necessary. The form usually taken up is under the head of physiology and includes a certain amount of anatomy illustrated or not, as the case may be, by dissections. It has long been a question how much the average child carried away from these lectures, as shown by the remarks of a little girl who stated that after the food was swallowed "the ghastly juice chymed it into chyle," but the most consistent plea for change of methods is found in

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Dr Hill's address to the Society of American Bacteriologists at their last meeting, and published in a recent number of *Science*. Dr Hill is one of the chief American authorities on hygiene, and his opinions are well worthy of attention. In his opinion physiology, in its modern complications, is a difficult book even for the physician and therefore so much the more for the student of 16 or under. On the other hand the foundation of a large amount of the practical hygiene of the present day is laid on bacteriology and it is upon the proper appreciation of this foundation by the laity that the efficiency of the building depends. While on the one hand the apparatus for the demonstration of physiological experiments is usually complicated in the extreme, a perfectly adequate apparatus for similar bacteriological demonstration may be prepared and demonstrated in the kitchen. While we must, no doubt, concern ourselves with the general problems of water supply, etc., the place where the application of the major part of the theories of hygiene will stand or fall is the household, and the person applying them is not the trained nurse or the physician but the mother and the housewife. Unless she is persuaded of the importance of disinfecting excreta, of boiling suspicious water and milk supplies, as well as of other equally vital hygienic details, these things will not be done, and our best city sanitation will fail of its due result.

He gives valuable suggestions as to the general methods of the courses to be offered and shows the simplicity of the armamentarium, in a most convincing manner. No small part of the effect is due to the manner of presentation, and this may be exemplified by one or two quotations. After quoting Huxley to the effect that if it were necessary at some time in the life of everyone to play a game of chess against a master, with life as the prize, it would be considered no less than criminal to fail to give each child some knowledge of the game, he at once makes the obvious application to the study of the means of meeting the disease conditions with which every one must sooner or later come into contact, and compares the value of such instruction with compulsory instruction in music, the dead languages, and other subjects which, though of interest in themselves, are of little aid in the battle of life. With regard to the present teaching in physiology he states: "The best known investigators of the relatively simple questions of dietetics swing from one extreme to the other notwithstanding long years of anatomical and physiological study in the most highly equipped laboratories. Within five years, minimum feed-

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ing, maximum feeding; complete mastication, bolting the food whole; a selected diet, carefully weighed, measured and calculated; and free feeding at the dictates of our appetites have all been advocated by our highest authorities. What can the study of a diagram of the intestinal tract and the learning the names of different portions of the gut do in enabling the future citizen to decide how or what to eat? Consider the case of a native South Sea Islander if the study of a railway map of the Twentieth Century Limited, printed in a foreign language, and demonstrated by a fellow savage, be the sole available source of knowledge on the subject of railway transportation, on which he is to decide what produce to ship and how and when to ship it?

"Such illustrations, and the comparison is scarcely far-fetched, bring home to us the need for early instruction in these matters, even though some of the work at present considered necessary be omitted. At what stage in the school education this should be undertaken, and how much of the instruction would be remembered when the time came to apply it, cannot be stated ex cathedra, but it seems at least worthy of consideration whether the non-professional citizen should be compelled to glean the only available information on such matters from the public press and from popular magazines. R. G. P.

The Disease of the Rough Skin.

That pellagra—so named because of the roughened skin which constitutes one of the symptoms of the disease—is present in the United States cannot be doubted. That it has occurred in acute epidemic form, with a mortality rate of 64% in one series of 88 cases, is a matter of record. That the disease, once having gained a foothold in this country, will become more prevalent in its less rapidly fatal but more horrible chronic form appears probable from what is known of the course of the condition in Italy. American medical science must realize, therefore, that a new task has been set before it and that this task, which has baffled the genius of Lombroso and of other Italian investigators, is one which cannot be attacked in any haphazard or half-hearted manner.

Throughout the literature of pellagra there runs a connecting thread—the story of Indian corn. The earliest appearance of the disease in Italy, in the very beginning of the eighteenth

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century, is synchronous with the importation of maize from Turkey. And ever since that time corn which has become spoiled and mouldy at some stage or other between the field and the table has had the leading rôle of the heavy villian in the story. But the story is not nearly finished, the plot is still quite complicated, and the epilogue is not yet at all ready to be written. While the zeistic theory is accepted by the majority of the more competent investigators there are some points which do not harmonize. In European countries the hygienic surroundings and the social conditions which make abject poverty thankful for even spoiled corn to eat, are important factors in the production of the disease. In some cases the eating of corn is apparently to be excluded. In the American cases the majority of the patients have lived under fairly good conditions. One very strong point against the zeistic theory is the seasonal recurrence of the symptoms every spring, even when all corn is removed from the diet. Despite such objections as have been raised the association between the use of spoiled corn and pellagra is too close a one to be neglected—it is so close as to call for severity rather than laxity in the drafting and enforcement of pure food laws.

Just as to how corn acts in the production of pellagra is not established. The relation between the food and the disease is much like that existing between fish or rice and beri-beri, in which also the exact etiologic factor is not known. One thinks, too, of ergotism, which has been proved to be due to the ingestion of rye contaminated by the fungus *Claviceps purpurea*. From spoiled maize Lombroso isolated pellagrozina, which is toxic for animals. While it produces symptoms of poisoning in human beings, true pellagra has never followed its administration. Ceni claimed to have produced a pellagrous condition in chickens fed with moulds, belonging to the general *Aspergillus* and *Penicillium* isolated from spoiled corn. That maize actually causes pellagra and, if so, the mechanism of its action are problems still to be solved.

Clinically and pathologically pellagra may for the present be considered a toxic trophoneurosis—bearing in mind that the latter word may cover a multitude of sins and much ignorance. The disease manifests itself by symptoms referable to the gastro-intestinal tract, the nervous system and the skin. The alimentary tract is usually first involved. After some months the exposed portions of the skin exhibit an erythema which later gives way to an increase in the horny layer and to roughening of the epi-

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dermis. The nervous symptoms may vary exceedingly in nature and in intensity. In the acute cases death may occur during mania or convulsions. The chronic cases, whose average duration is five years, may become insane. The children of pellagrins are often mentally and physically deficient.

The pathology of pellagra is indefinite. Atrophy of organs supplied by the vagus and the sympathetic system is mentioned, but this might well be the result of the anemia present. In the central nervous system degenerative changes, in both ganglion cells and white matter, have been described. The lingual epithelium may be more or less completely desquamated. The chief change in the skin is the hyperkeratosis, a condition which one would expect to follow a persistent erythema, no matter what the cause of the latter. The characteristic histological complex—if such there be—remains to be established.

While the diagnosis of the disease in pellagrous districts would appear to be simple, the question may be a more difficult one in isolated, sporadic cases. Among the latter will undoubtedly be included certain conditions, such as pemphigus foliaceous, which even the experienced dermatologist sees but infrequently.

Since treatment is helpful only in the early stages of pellagra the proper diagnosis is a matter of importance. But more important than the diagnosis and treatment of individual cases is the prevention of the disease by the proper prophylactic measures in regard to general hygiene and diet. O. T. S.

The Rockefeller Commission on Hookworm Disease.

Of the numerous gifts of Mr. John D. Rockefeller to medicine the latest is to the reflective mind, perhaps the most important. We refer to his recent endowment with a fund of one million dollars of the Rockefeller Commission on Hookworm Disease.

For several generations the existence has been recognized in certain districts in the Southern States, of a peculiar folk, known variously as "poor whites", "crackers" and "poor white trash" (the latter appellation given them contemptuously by their negro neighbors), who are characterized by intense laziness and thriftlessness of habit and by various stigmata of physical and mental degeneracy. As these people are descended, in the main, from the same stock as their more vigorous and aggressive neighbors,

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a satisfactory explanation of their decadence has been, until recent years, a baffling problem. Chronic malaria and "general cussedness" have been the most widely suggested and accepted causes.

Quite accidently and altogether without design, but in typical American fashion, the real cause of the condition of these people was discovered. Some years since, in 1902, Dr Charles Wardwell Stiles, the well known zoologist in charge of the government laboratories in Washington, identified some worms sent him for examination as uncinaria—the hookworm—but of a new species. He called his new organism *Uncinaria americana,* and, true to his zoological instincts, became interested in the study of its distribution and life history. Fortunately, he was in a position to prosecute his studies on a large scale, and, as one result, he cleared up the mystery of the "poor white" of the South and showed that there is widely spread in the Southern States a form of chronic secondary anemia similar to that long recognized and fully understood in certain parts of Europe under various names, such as St. Gothard Tunnel disease, uncinariasis, etc.

As is well known, the cure and prevention of this grave disease, both in Europe and in America, are comparatively simple.

The facts above set forth have not been hid under a bushel, but have been sown so broadcast that they sifted even into the heads of governors, members of State legislatures, and State and local boards of health. These officials have reacted characteristically to the stimulus. It is scarcely necessary to point out that this means that they have done next to nothing towards curing and eradicating, by the comparatively simple means necessary, a disease which causes a great deal of suffering and great economic loss to large communities.

Doubtless, Mr. Rockefeller's entrance into the case was at the earnest solicitation of a small group of broad minded citizens—we were about to say "super-citizens"—probably educators, who had become disgusted with the inefficiency of their local governments.

That Mr. Rockefeller's experiment in the American hookworm disease will prove successful, there is no reasonable doubt, since he has, with his accustomed sagacity in such matters, placed the funds in the hands of a most competent and well balanced commission.

But in our opinion, the results of this splendid gift will reach much further than the eradication of the hookworm disease. The prosecution of this work will bring the people of these States into

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contact, through dispensaries, hospitals and laboratories, with a body of trained hygienists. Thus the latter are sure in fighting uncinaria to spread by precept and example the doctrines of modern hygiene and to plant the germ of preventive medicine in a virgin soil. So will Mr. Rockefeller's agents, we doubt not, be instrumental in materially lessening the ravages of, if not in wholly eradicating, dysentery, typhoid fever, malaria and tuberculosis in these States. It is pleasant to indulge in the hope, that to our Southern friends, the hookworm may prove a blessing in disguise.

And how typically American is all this! It is not imaginable that in any European state, with the exception of Portugal and Turkey, uncinariasis should have remained so long unrecognized, or, that on its final recognition, so little should have been done by the government for its control. With us, metaphorically speaking, every community has its hookworm plague. In Northern Ohio we rejoice in several, of which typhoid fever, and tuberculosis may serve as examples. We treasure them as dearly, and they are as dear and certainly more deadly than the Southern uncinariasis. Mr. Rockefeller is to be congratulated upon his wisdom in establishing this commission. Would that he would establish a similar commission for the eradication of typhoid fever from his native State. By no other means is there any likelihood that this will be accomplished within the lifetime of any now living.

W. T. H.

Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

Cerebrospinal Meningitis: In the *Journal A. M. A.* for October 30, Simon Flexner writes concerning serum-therapy in the treatment of epidemic cerebrospinal meningitis. The excellent results obtained from the serum in America and Great Britain are being repeated in France, so that the serum-treatment has been subjected to a test under a variety of conditions, some of which were as severe as probably ever occur, and yet he still advises caution in concluding that the case has been proved for the serum. In 712 cases in which the bacteriologic diagnosis was made and the serum-treatment used the mortality was 31.4%, the highest mortality having occurred in the first two years of life. The importance of early injections of the serum is emphasized; the results in the first two years of life are especially noteworthy; and the rule of the effects of early injection, during the first three days of the disease is preserved up to 15 or 20 years, when it disappears. The explanations which suggest themselves are that among older individuals there tends to be a large number of very severe, rapidly fatal or fulminating cases of the disease, or that older persons are less subject to the beneficial actions of the serum. As regards the actual proposition it may be stated that adults not infrequently respond promptly to the serum injections by abrupt termination of the disease or amelioration of the symptoms and pathologic conditions. He calls attention to the fact that certain groups of cases of epi-

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demic meningitis indicate that the diagnosis can sometimes be made before the usual symptoms of meningeal irritation appear or are recognizable. The cerebrospinal fluid in these cases, when removed, has been sometimes clear and sometimes turbid, and contained more or less polymorphonuclear leukocytes and always *Diplococcus intracellularis*. The serum being injected immediately, these cases almost invariably were abruptly terminated or ran relatively a mild course. There are two symptoms likely to persist after the disease has entirely yielded to treatment, namely, rigidity of the neck and the Kernig sign, other things being favorable they can be disregarded; they may persist even for several weeks and gradually disappear. Apparently, too, certain strains of diplococcus are more resistant to the destructive and inhibiting influence of the serum, but this fact is difficult to explain. He believes, too, the inflammatory exudate is sometimes formed in certain parts of the meninges or in parts of the brain which the serum can not reach.

Nitroglycerin: The *Medical Record* for October 16 notes the fact that the frequent relief met with in employing the nitrites and nitroglycerin in heart disease has led many physicians to regard some of them, especially nitroglycerin, in the light of "cardiac stimulants" and has led to a quite unwarranted use of this drug in conditions of low pressure accompanying cardiac insufficiency. Moreover, the symptom of blood-pressure is being more and more looked upon as a conservative phenomenon that tends to supply with blood, tissues which, in the conditions of low blood-pressure, would not be thus supplied in the quantity necessary for carrying on their usual functions. Many practitioners, therefore, have begun to doubt the supposed good effects of nitrites and have given up their use altogether in the treatment of circulatory disturbances. Of course the truth lies somewhere between these extremes of practise. Frequently high blood-pressure, however conservative, may prove dangerous by itself, and then the effects of nitrites in lowering it prove helpful, if not in the long run at least for a short time while the dangers exist. On the other hand judicious administration of digitalis or other true cardiac stimulants is sometimes beneficial in other cases in spite of high blood-pressure, which may not be effective in distributing the blood properly, or may interfere with the nutrition of the heart. These in the main are the conclusions of a recent study of nitroglycerin by L. F. Dmitrenko, and he also brings out the fact that nitroglycerin is not simply a pressure-lowering drug. True it leads to a dilatation of the blood-vessels; the changes in pressure, however, depend upon the conditions elsewhere at the time. With an efficient or hypertrophied heart the blood-pressure in the smaller radicles of the circulatory system may rise. With a weak or an exhausted heart the pressure may fall both in the larger arteries and in the smaller arterioles. In addition the condition of the peripheral vessels, their irritability, tone, and reserve strength are the other active factors in the production of therapeutic effects. Nitroglycerin, therefore, is neither a specific in all cases of circulatory disease with high blood-pressure, nor such a useless drug as some have of late tried to make it out. Its use requires simply the selection of suitable cases, for it affects not the essential cause of the abnormal phenomena, but the mere proximate results of mechanical conditions. With such judicious selection of cases its effects are evident and beneficial enough to warrant its retention in the group of important drugs in the treatment of circulatory diseases.

Epilepsy: In the *Medical Review of Reviews* for October, Ciccarelli (*Il Policlinico*) advises the use of calcium in epilepsy, having studied its effects in the disease in the insane asylum of Aquila, Italy. The remedy was employed in the shape of calcium hypophosphate, in doses of 2-3 gm. (30 to 40 grains) daily, divided into three doses. Compared to the bromid treatment, hitherto used in the institution, the results of the calcium medication were not only equivalent but considerably superior in essential epilepsy, as well as in traumatic and

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focal epilepsy, also in the infantile type combined with spastic hemiplegia. The number of attacks diminished to a more marked degree in certain cases than under the bromid treatment, and in all the remaining cases equaled the number that could be obtained under the bromid medication. At the same time the frequently very unpleasant symptoms of bromid intoxication were absent, and the general condition of the patients visibly improved in contradistinction to the bromid treatment. The author has obtained the best results by using the bromids at intervals and for a short time under continued calcium medication.

Pulmonary Edema: Joseph L. Miller and S. A. Mathews, in the *Archives of Internal Medicine* for October treat of experimental acute pulmonary edema. In applying therapeutic agents to the treatment of experimental edema, it can readily be seen that no single remedy would be indicated in all instances. The only form of experimental edema that yields readily to treatment is that produced by muscarin. Atropin has here a physiologic antagonistic action and under its use the left ventricle assumes its normal working power, the blood-pressure becomes equalized, and the edema gradually subsides. Atropin, however, in pulmonary edema from other causes was without beneficial effect. Nitroglycerin in the edema produced by acetic ether and iodids did not reduce the pulmonary arterial pressure. In the edema induced by adrenalin with high systemic pressure, the nitroglycerin was ineffectual on account of its action being interfered with by the more powerful adrenalin. This does not mean, however, that in pulmonary edema of this type in man nitroglycerin might not be beneficial, as the high tension in the systemic circulation may be due to other agents than adrenalin, which yield, slightly at least, to the vasodilators. Digitalis was also tried, both in preventing and alleviating developed edema. The only form of edema in which it appeared to have any beneficial action was due to artificial mitral stenosis. Here, in conjunction with venesection, it contributed to the equalization of the circulation. Although the therapeutic results obtained were unsatisfacory, a knowledge of the factors at work in producing an edema, should be of assistance in its intelligent treatment. Considering marked disturbance of the circulation as the chief underlying cause of the trouble, intelligent rather than empirical treatment should be instituted. To give adrenalin, digitalis, or caffein in a case of edema with high arterial tension, might hasten a fatal termination. Atropin under these conditions, on account of its raising blood-pressure by quickening the heart action, would not be indicated. In this type of edema efforts should be directed toward lowering arterial tension by the vasodilators, or counterirritation to the surfaces of the body or by bleeding. With the type of edema associated with a low tension pulse the treatment might be injurious, and here digitalis and caffein are indicated. Atropin is beneficial in that form due to poisoning by toadstools and pilocarpin. The use of adrenalin should be discouraged, as being under certain conditions dangerous and always valueless. Morphin in small doses may be safely used in any type of acute pulmonary edema.

Cardiac Treatment: H. A. Hare in the *Therapeutic Gazette* for October treats of the relation of some recent advances in cardiac physiology and pathology to treatment. We must bear in mind that the old theory that the contractions of the heart originate in the nerve ganglia in its walls, has now been put aside, and in its place the myogenic theory to the effect that the heart muscle originates its own impulses and transmits them by muscle fibers and not by nerves, has been accepted. The heart may be said to have in itself four inherent functions—the originating of stimuli; the state of irritability, or the ability to respond to stimuli; the power of conductivity whereby the stimulus passes from one part to another; and lastly contractility, by the exercise of which function it pumps the blood. A physiologic explanation of one of the means by which digitalis does good in cases of cardiac failure is that by prolonging the period of diastole, it permits the heart to recover its irritability so that it

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readily responds on impulse, and further by the rest which it has had, its power of contractility is increased, even if it were true that digitalis does not act as a direct stimulant to the muscle itself. In certain cases of cardiovascular disease we can do much by proper drugs, proper diet, and proper mode of living to avoid catastrophe. Here we can call upon the nitrites and iodids to lower arterial tension, and strophanthus or digitalis or nux vomica to help the heart. Here we must endeavor not to bring pressure to the normal but recognize that while the arterial pressure is too high and must be lowered, it is nevertheless essential to bear in mind that a tension higher than normal is essential if the blood is to be driven through rigid and narrow blood-paths. In many of these cases useful lives can be greatly prolonged and much physical and mental comfort given. He emphasizes the importance of studying the vascular state and the degree of blood-pressure in several states of diseases, and presents several clinical points: 1 Cardiovascular stimulants are often given when vascular relaxants are really needed. 2 More attention to the protection of the heart from unnecessary labor is advisable. 3 If the physician will direct his treatment to the vessels the heart will often be able to take care of itself. 4 Do not stimulate a heart to increased effort when the real object is to decrease its burden and to diminish the toxemia which is destroying its function.

Potassium Iodid: In the *Journal A. M. A.* for November 13, George Dock presents the advantage of using potassium iodid when iodids are indicated. A knowledge of how much of a remedy to give is essential in practical therapeutics, and potassium iodid is a frequent example of imperfect preparation as regards dosage. If there is one fact in therapeutics that is well founded it is that certain syphilitic lesions and their symptoms are frequently relieved by large doses of potassium iodid. It is almost as well established that to be called large, in this sense, the dose must be more than 15 grains, and may be many times that; and yet one can often see syphilitics who have been warned that more than five or ten grains at a dose are dangerous. One of the greatest difficulties of the beginner in medical practise is in regard to getting the drug of which he knows so little into the body of the patient. Dock prefers the grain-to-the-drop solution in water, administered in milk. He always uses it in this way when giving iodid for marked effect, and has not found any patient who could not take it or who had any difficulty from the local effect on the stomach. In this manner he has given up to 80 grains a day for more than a year, and 500 grains a day for many weeks with no disagreeable effects. He has found this a satisfactory way of giving iodid and so has used the potassium salt almost exclusively. While the sodium iodid should be better for some reasons than the potassium, he is convinced that it has no decided advantage over the potassium salt so far as taste and effect on the stomach are concerned. Hydriodic acid, too, he has found disappointing. As to the newer iodin preparations on the market, he believes the organic combinations are not necessarily superior, and those who desire to investigate such might begin by a careful and unprejudiced study of a simpler remedy and one that has much evidence in its favor. He concluded that: Potassium iodid can be taken easily, safely, and in adequate quantities by most patients who need it. Other preparations of iodin may prove to be better, but need to be tested, and recommendations, based on the inferiority of potassium iodid, should be looked on with suspicion.

Pituitary Gland: In *American Medicine* for October, Harvey G. Beck, and John J. O'Mally state that the pituitary gland has been employed with benefit in the treatment of acromegaly. It seems to exercise no effect on the course of the disease but does seem to be efficient in relieving some of the most distressing symptoms, as for example, the headache, the neuralgia, pain in the limbs, the general lethargy, and loss of memory. In a series of 13 cases, seven showed relief of

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symptoms, five showed no improvement, and one case grew worse. Some claim to have seen marked benefit accrue from the combined use of pituitary gland and the thyroid, particularly in regard to relief of headache; but it is difficult to determine how much of this effect must be attributed to the thyroid and how much to the pituitary gland. It is best in the present state of our knowledge to give sufferers from acromegaly the benefit of the combined use of the thyroid and pituitary, in connection of course with other established measures for the relief of symptoms. As to its influence upon pulse and blood-pressure, from the results obtained they unhesitatingly say that pituitary extract increases the blood-pressure and diminishes the pulse rate, the degree depending upon the dose of the extract and the susceptibility of the individual. Doses of from 15 to 20 minims produce a perceptible increase in the blood-pressure in from 4 to 20 minutes and maintain it from 20 minutes to an hour or even longer, differing in this respect from adrenalin in which the effect is far more transient. There is a coincident change in the pulse rate, diminishing as the blood-pressure increases and increasing as it falls. The rise in blood-pressure varies from 8 to 38 mm., while the pulse rate falls from 4 to 17 beats per minute. No untoward effects were noted in any of the cases in which the larger or repeated doses were administered, and the inhibitory influence upon the pulse is more lasting than the influence upon the blood-pressure.

Pneumonia: Walter Lester Carr in the *New York Medical Journal* for October 16, believes that in acute pneumonia in children medical treatment is indicated only when special symptoms arise or complications are present. The heart may have to undertake a great deal of extra work, but as the heart of an infant or young child is usually sound we do not find it necessary to stimulate every pulsation. If the engorgement observed at the outset of an acute pneumonia is intense, and circulation and respiration are impaired, counter-irritation by mustard paste, 1 to 5, will be in most cases sufficient stimulation without oxygen or nitroglycerin. This primary cyanosis, which in children may take the place of a chill, is of short duration, and stimulation resorted to at the time should be for a limited period. A dose of calomel will, by relieving hepatic congestion and also perhaps by changing in some way the blood-pressure, prove a safe inaugural medicine. After the initial treatment, the patient may be able to do without medicine. Children bear rises of temperature well, and the coal-tar preparations are not called for, as sponging and clearing the intestines will usually suffice to lower the temperature. Routine treatment by alcohol, strychnin, digitalis and nitroglycerin to prepare a child for an expected collapse is wrong, and those drugs should never be nearer than the nurse's table, as they are seldom required. In bronchopneumonia we need to give more attention to the requirements of a patient for a well ventilated room than is demanded in lobar pneumonia. Open windows or an outside balcony may help us to get the greatest amount of oxygen to the child. Fresh air diminishes the dangers of reinfection in influenzal bronchopneumonia and lessens the violence of the mixed infection. Stimulation of the surface of the chest is in his opinion of more value in bronchopneumonia than in the lobar variety. He summarizes the treatment of pneumonia in infants and children as, 1, Lobar pneumonia is a self-limited disease of short duration and seldom demands more than nursing and care; medicinal treatment is needed when symptoms indicative of weakness or complications arise, and to relieve pain or restlessness. 2, Bronchopneumonia in its acute manifestations may require no more treatment than is mentioned for lobar pneumonia, but as it is usually associated with depressed vitality or infection, stimulation by alcohol and other agents will be required. In all cases of bronchopneumonia careful nursing and attention to diet will save many lives, and lessen the extent and severity of the disease.

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Crotalin: Thomas J. Mays in the *Medical Council* for November, contributes the practical results of his experiments with crotalin, which is the venom (salivary secretion) of the rattlesnake. It is the dried, yellow, scaly, granular residue of evaporated rattlesnake venom, and is soluble in water and glycerin. Experience has shown that the most practical hypodermic dose ranges from 1-200 to 1-100 grain once or twice a week, and that it is preferable to begin with the smaller dose in every case unless a decided impression is desired at the beginning of the treatment. He has been doing experimental work on snake poison for 20 years, and has used it clinically for the past year and a half. He has found that it has a specific influence upon the nervous system. From its effect upon the respiratory center he was led to use it in pulmonary consumption. Its clinical effects here are upon the cough and expectoration, as a rule both of these symptoms being almost invariably improved. The effects of crotalin on the laryngeal and pharyngeal symptoms which accompany phthisis are quite marked. He has seen some cases that had great difficulty in swallowing on account of the food irritating the throat, that were markedly relieved after a very few injections. Hemoptysis is another symptom influenced by this drug. It should, however, be witheld from female patients about to menstruate, or who are menstruating, as this function may be aggravated. Crotalin, too, reduces the fever in phthisis, even in cases that are suffering from a high degree of fever and are apparently hopeless. In such instances he has seen the fever go down from 103° F. to practically normal in the course of four or five weeks, with an alleviation of all the concomitant symptoms. It does not seem to increase the weight, but the strength of the patient seems to be enhanced almost from the beginning ot the treatment. It is of value, too, in acute croupous pneumonia and also seems to be of aid in that last stage of pneumonia usually characterized by signs of collapse, great dyspnea and marked laborious diaphragmatic breathing. In such a condition it should be given in larger doses, say 1-100 grain, repeated in 10 or 12 hours or oftener as the case may demand. Asthma is another disease greatly benefited by this remedy. He has also seen some very good results in the treatment of neuralgia, especially tic douloureux of the supramaxillary nerve. He believes crotalin deserves serious investigation on the part of the profession.

Department of Pharmacy.

Conducted by H. V. ARNY, Ph.G., Ph.D.

Compound Sulphur Ointment, N. F.: A. Weinstein (*Pharm. Era*, XLII, 425), gives the following warning: "Care must be taken in applying this ointment on the face, as the green soap which contains potash is caustic and liable to injure the face." He so suggests because of two disagreeable experiences with physicians who made vigorous complaints after patients had been injured.

Prepared Castor Oil: The same article gives Weinstein's recipe for a palatable castor oil: viz., castor oil 12 ounces; fluidextract glycyrrhiza ½ ounce; fluidextract sarsaparilla 3 drams; oils of peppermint, anise and lemon, each 8 drops; glycerin to make 1 pint.

Sterilization in Pharmacy: An article by J. Thomann (*L'Union Pharmaceutique*, through *Pacific Pharmacist*, 3, 195) reviews the directions for sterilization given in several European pharmacopoeias. Condensed, the vessels should be rinsed with 1% hydrochloric acid (to neutralize the alkalinity of the glass) and then rinsed with distilled water. The following substances can be readily sterilized at ordinary pressure between 90° and 100° C. when placed in vessels free from alkali: gelatin;

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sodium chlorid; caffein and its salicylate and benzoate, sodium salts of these two acids and also the arsenate; quinin; strychnin; stovain; alypin; novocain; sodium cacodylate; cocain; morphin and adrenalin. There has been some doubt as to the stability of the last three substances under the heat of sterilization, but the latest work seems to show that decomposition is due to alkalinity of the glass container and not to heat.

Sterilized Gelatin Solution: On the Continent, gelatin is now used by physicians as a hemostatic, in the form of a 10% solution, administered by hypodermic injection. George P. Forrester (*American Druggist, 55,* 209) emphasizes the great care necessary in making such solutions, not only from the standpoint of sterilization, but also in the selection of a gelatin free from tetanic poison. The finished solution is best dispensed in ampuls.

Suppository Base: In preference to the pharmacopoeial directions to use as a base for suppositories containing substances which would soften pure oil of theobroma, a mixture of the oil (butter of cocoa) and a little spermacetti, H. A. B. Dunning (*American Druggist, 55,* 173) prefers a mixture of oil of theobroma 87½%; castor oil 10%; wax 2½%. He also notes that adrenalin prevents free fusion of the suppository at body temperature.

Alkaline Antiseptic Solution: H. V. Arny (*American Druggist, 55,* 173), notes that the brilliant red tint of some samples of this popular preparation fades and that the color is restored by exposing the liquid to air (in an uncorked vial). The exact reason of the fading has not been discovered but the fact is given publicity to emphasize possibilities of variation in color of official preparations, which variation has, of course, no bearing on the medicinal properties.

Cachets vs. Compression: An anonymous article from *The Prescriber,* of Edinburgh, (*American Druggist, 55,* 173), calls attention to the superiority of the cachet—as to convenience, elegance and solubility—over the tablet.

Deterioration of Cannabis Indica: The cause of the deterioration is the oxidization of its active principle cannabinol, on exposure to air. The remedy, according to Marshall (*Pharmaceutical Journal,* through *Druggists Circular, 53,* 518), is to keep the drug and its preparations in hermetically sealed containers.

Some Vexatious Prescriptions: Donald McEwan (*Pharmaceutical Journal,* through *Practical Druggist, 26,* 169), reports several prescriptions which brought dangerous results. A chemist at Ramsgate refused to dispense a prescription calling for ½ ounce of tincture of digitalis and 1½ ounces of water, this amount to be taken at one dose. The patient died—because of lack of the digitalis the physician claimed, the patient's condition requiring the large dose indicated. The coroner while exonerating the chemist expressed the opinion that under the circumstances the prescription might have been dispensed.

A second prescription called for equal parts of liquor arsenicalis (Fowler's solution) and liquor strychninae and the chemist dispensed same with a "shake well" label. The patient did not shake it and took as the last dose the sediment which, of course, consisted of most of the strychnin precipitated by the alkali of the arsenical solution. The result was fatal. The Crown investigators decided that while neither prescriber nor dispenser were free from blame, no judicial action would be taken.

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In a similar case at Johannisburg, the prescriber was tried for manslaughter and acquitted.

In another case a prescription called for one ounce diluted hydrocyanic acid in five drop doses. The chemist consulted the prescriber, suggesting the danger of placing so poisonous a substance in the hands of an ignorant person. His suggestion was not well received.

Among other dangerous prescriptions mentioned were the following: Potassium iodid, 2 drams; tincture ferric chlorid, 3 drams; infusion quassia to make 6 ounces; ferric chlorid liberates iodin from the iodid. Potassium iodid, 2 drams; solution of strychnin, 1½ drams; water, to make 3 ounces; the iodid is likely to precipitate the strychnin as hydriodid.

Fluidglycerates: A new line of liquid pharmaceuticals made by percolating drugs with a 20% glycerinic aqueous menstruum, the resulting product representing in 100 c.c. the activity of 100 grams of the drug, was suggested by G. M. Beringer in 1907. Beringer has continued his work and presents in *American Journal of Pharmacy, 81,* 475, working formulae for the fluidglycerates of nux vomica, red rose, sanguinaria, buchu, eriodictyon and grindelia.

Senna Syrups: The palatable and efficient purgative syrups of the Pharmacopoeia and the National Formulary are discussed by P. E. Hommell (*Merck's Report, 18,* 262), who gives suggestions as to pharmaceutical improvement of syrup of senna U. S. P.; compound syrup of senna N. F. and aromatic syrup of senna and syrup of senna and manna (syrupus sennae mannatis).

Phenostal: Diphenyl-oxalic acid—ester is now marketed under this name. It is furnished in 5 gram tablets, containing 50% of the ester. A 1% solution, even in calcareous water, has a disinfecting power equal to 5% phenol solution. This is due to the liberation of oxalic acid in the solution, which, while not generally recognized as such, is distinctly antiseptic. (G. Mayer, *Pharm. Journal,* through *Merck's Report, 18,* 270).

Unaltered Plant Extracts: The plan suggested by A. Goris (*Societe de Pharmacie de Paris,* through *Spatula, 16,* 21), is that of destroying the natural ferments of the plants, to which decomposition is largely due. This is done by subjecting fresh plants to vapors of neutral liquids boiling below 100 C. The plants are then dried, extracted with 80% alcohol and the alcoholic liquid evaporated in vacuo. The resulting extract is freed from fat by kneading with anhydrous ether. Such extracts are water-soluble and are said to contain all the active principles of the plant in an unaltered state.

Academy of Medicine of Cleveland.

Ophthalmological and Oto-Laryngological Section.

The forty-second regular meeting was held at the Cleveland Medical Library, Friday, October 22, 1909, J. N. Lenker in the chair.

The program was as follows:

1. Report of a Case of Rupture of the Choroid, E. Lauder. The patient, a boy aged 15, had received a blow upon the eye with a stone. He was first seen three weeks after the injury and at that time there was dilatation of the pupil and rupture of the choroid on the temporal side. At first there was no pigmentation, but later there was a considerable

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amount, especially at the upper part of the rupture. Vision was about 20/70.

2. Microphthalmos, Report of a Case and Presentation of Specimen, E. G. Rust. The patient, a female aged 26, had symmetrical features excepting that the left eye was microphthalmic. The orbit and lids were counterparts, both in shape and size, of those of the other side. The eyeball itself had always remained rudimentary. The patient could not remember that light perception had ever been present. The eye was enucleated, chiefly for the cosmetic effect. The case was one of microphthalmos under the division of rudimentary development without cysts.

3. Infection of the Antrum of Dental Origin, W. J. Abbott. The patient, aged 26, was first seen about three weeks after the extraction of the teeth and a granulating and discharging cavity was found. There was pain in the right cheek, particularly localized in the region of the first and second right upper molars. On transillumination the right cheek was slightly darker than the left. An opening was made into the antrum, through the alveolar process, and gave considerable relief. The antrum was irrigated and drained and the patient made a very rapid recovery. He also reported a case of multiple polypi of the nose which had caused marked deformity. The polyps were mucoid in character, and of sufficient number to fill two small bottles.

Medicolegal Section.

The third regular meeting was held at the Cleveland Medical Library, Friday, October 29, 1909, Judge Alexander Hadden in the chair.

The program consisted of a symposium upon Tests of Insanity:

1. In the Civil Court, Attorney B. A. Gage and W. B. Laffer, M. D. (Appearing in full on pages 741 and 748.)

2. In the Probate Court, Attorney Frank Higley and Chas. H. Clark, M. D. (To appear in full in the Journal.)

3. In the Criminal Court, Attorney W. A. Carey and A. B. Howard, M. D. (To appear in full in the Journal.)

T. A. Burke, in the discussion, said that whereas formerly he had entertained the thought that there was a real and distinct antagonism between law and medicine in a medicolegal attitude towards insanity, he was now convinced that the antagonism was but apparent and not real. Polonius in his effort to define the insanity of Hamlet said "Why, what is madness?" "It is nothing else than to be mad." We in all the years had not improved on this definition very much. He did, however, like to hold in memory as a guiding star the thought of Eskridge who regarded insanity as "a symptom of perverted function or disease of the brain involving mental integrity. As to the tests of this perverted function or disease of the brain, medically speaking there was only one insanity in spite of all its multitudinous phases—only one question—Was the person under observation sane or insane? Not whether he was sane enough to be able to comprehend the extent of his property and the object of his bounty. Not whether he could distinguish right from wrong, as in his personal judgment, this was not a good test. Those who had lived with the insane knew very well how true it was that almost all insane persons could tell right from wrong. It was often remarked that the occupant of the insane ward would never strike a man larger than himself. He would know it was wrong to soil the clothing, to destroy his bedding and so forth. "There is nothing wrong but thinking makes it so." The people of India drowned the deformed and defective babies in the Ganges. Was that insanity? Guiteau knew right from wrong when he shot Garfield, but he was nevertheless insane and was—inconsistent though it may appear—properly and justly executed. It was not possible with any of the tests enumerated, either medical or legal, to draw the line between insanity and sanity in every case, and especially, as was often required,

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upon one examination. Following the suggestion of H. H. Drysdale in a recent paper we should have a detention hospital or psychopathic ward in a general hospital for the proper observation, by trained scientists, of suspected cases. The reasons were so many and so convincing for this procedure as to render argument unnecessary. There should be, further, a separation of the criminal insane from those suffering from the ordinary insanities, as in New York State. As an evidence of the fallacy of the right and wrong test the Thaw case was a splendid example. Although convicted of a cowardly murder his insane condition was recognized, he was properly committed to an institution for the criminal insane, and he had attempted no further homicides there.

Judge Hadden said that in a recent interview, Dr C. H. Clark at the Cleveland State Hospital had intimated to him that if patients could be received in the incipient stage of their mental disorder the percentage of recoveries would be very much higher. He had been so impressed by these remarks that he would ask Dr Clark to repeat what he had said on that occasion.

Charles H. Clark, in reply said that by a careful inquiry into the history, onset and duration of the mental diseases of the patients admitted to the Cleveland State Hospital, it was found that in a majority of the cases the psychosis had been in existence from a few weeks to several months before steps were taken to institute treatment and in a number of cases the disease had been in existence for a year or more. He believed the first step necessary for a favorable termination of any case of insanity was a change of environment and the removal of the patient from the surroundings where the disease had its origin. If the friends of the patient delayed such action it frequently meant that the patient would progress into a chronic condition and mental deterioration would become manifest before steps were taken to have him properly cared for. In a great many of the patients admitted to the Cleveland State Hospital beginning mental deterioration had taken place or was well advanced and this accounted for the apparent low rate of recovery in hospitals of this character. In the medical and surgical cases, the general hospital was resorted to, as a rule, at an early date, and such should be the procedure with those afflicted with mental diseases, for it was during the incipiency of the disease that active treatment should be instituted, if we hoped to produce a recovery.

J. S. Tierney said that he was somewhat surprised that in discussing the signs of insanity, as applied to criminal court work, no mention had been made of the means which should be employed in differentiating between a really existent psychosis and the feigned insanity of the malingerer. This class of individuals frequently simulated not alone the insanities, as such, but epilepsy as well. The once accepted differential test in determining whether an epileptic seizure was true or feigned, i. e.: the dilatation of the pupils which did not respond to light, had been observed in the true epileptic convulsive seizure, in individuals who had practised violent muscular contractions, and, as quoted by Darwin, Gratiolet said this same phenomenon was observed in persons who were furiously angry.

Suggestion was also offered as to the importance of anthropometric determinations. These measurements, particularly those of the head and face would yield very interesting data, in many cases indicating an arrest or a defect of cranial development, with an attendant cerebral maldevelopment.

I. M. Belkowsky said that having served as physician in different lunatic asylums for many years in the old country, he would like to say a few words in regard to the legal procedure there in cases in which the question of insanity was involved. When the question of insanity arose in court it was the duty of the judge to decide whether there was sufficient reason to doubt the mental condition of the person in question and if the court decided in the affirmative, the individual was transferred to a psychiatric clinic for observation by a competent physician who had either had a long training in mental diseases or was then superintendent of an asylum.

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Sufficient time was allowed the physician or physicians for observation and study of the case. These physicians returned a written statement concerning their observations of the individual, his history and antecedents, and their conclusions. Since the facts in such cases were stated so clearly and concisely there was seldom any disagreement of opinion between the court and the medical experts. Whether the suggestion of appointing a commission of three physicians in cases of insanity was better than the modus operandi in the old country must be left to the future. It was essential that physicians should have a good and thorough training in psychiatry, and experience in the State hospital. As for the anatomic stigmata of insanity and degeneration he did not regard them as of so much importance as the presence or absence of the ethical, social or altruistic sense. A normal person was always more or less social, altruistic, or ethical; he was conscious not only of his own rights but also of his duties towards the State or society. A lunatic or degenerate considered only his rights but not his duties. He took interest only in his own well being and concerned himself little with the State, society or even his own relatives. Therefore this predominance of egotism was found in all cases of degeneration, and in all neuroses and psychoses as for example, hysteria, epileptic paranoia, etc.

W. W. Cowgill said there was a widespread idea that persons suffering from mental diseases brought disgrace, to a greater or less degree, on their families. Indeed in this State there were some grounds for this belief in the minds of the laity, for after the insanity complaint had been filed and the warrant issued the patient was arrested and confined temporarily in the county jail until such time as his case could be heard before the Probate Court. This state of affairs should be remedied. The members of the medical and legal professions should do all they could to educate the public so that hospitals for the insane would not be considered merely places for detention or restraint, as were penal institutions, but hospitals for the treatment of patients suffering from mind diseases and that these patients should be given the same opportunities for receiving treatment as were patients suffering from other diseases.

N. Rosewater said that his apology for discussing the excellent symposium, of which he said he knew next to nothing, was that he recently became interested while writing on the subject of the instincts of appetite, fullness, satiety and other desires and passions and noted the difference in their control in the human being through the cultivation of reason, judgment and will, and in the animal which did not possess or cultivate these, whereas when the mentality of the human being approached that of the animal and his sanity changed into insanity there was more or less lack of control and when there was a brain lesion or perverted brain function, there was usually no control of appetite, fullness or satiety, the patient having abnormally great or lessened desire to eat, etc. So, too, in the toxemias of cancer, diabetes, etc., also in nervous diseases, melancholias, etc., these instincts were much perverted, exalted or diminished and if solely guided by these animal instincts, man could be led into physiological error and danger of over or underfeeding, whereas so long as he was sane and under the supremacy of his higher faculties acting coordinately, he even unconsciously entrusted his desire to the inspection of his reason, then to his judgment which weighed and decided all pros and cons, and by aid of these faculties, he directed and guided his action as to eating, through an all-powerful control of his will; thus he maintained absolute control of his requisite nutrition, in spite of his abnormally enormous appetite or entire lack of it. The same natural law of introspection and control, it would seem, applied as to man's impulses, desires and passions. This hitherto undiscovered law of human nutrition, which had a broad application in our medical problems, he conceived, might also be applied to the medicolegal questions of human moral or legal responsibility in the following manner. Every voluntary action of man might be regarded as due to the following five essential consecutive stages of coordinating or incoordinating brain function: 1. Consciousness (of sensa-

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tion, mental and physical). 2. Thought (association of ideas). 3. Reason, or correlation of ideas. 4. Judgment, or conscience, the result of weighing all pros and cons. 5. Will, self-control. In true insanity and also in allied conditions, such as delirium from drugs, fevers, etc., any one of these essential stages might be so defective in function as to make the person self-evidently irresponsible legally or morally. First stage: It was plain that without sufficient consciousness, as in the stupor of alcoholism or other poisons from within or without, or in the hypnotic state, man was irresponsible, especially if he had not knowingly been an accessory when imbibing, acquiescing or self-inflicting. Second stage: There might be defective thought function, such as in imbeciles and idiots and those having hallucinations. Third stage: If reason was essentially defective. A man might not have the ability to correctly exercise his reasoning function, becoming confused, deluded, not being able to array the facts, or harmonize them, and thus be clearly irresponsible. Fourth stage: A man might be able to reason and have all facts, pro and con, arrayed before him, yet be deficient in passing judgment which might be warped or biased or incapable of being formed. The fifth essential stage, will or self-control, must, like the other stages, be examined to see whether it was normal in function or defective. Granted that the normal man, aided by his normally functionating reason and judgment, could call forth a superabundant self-restraint and control of his impulses, passions, desires, habits, appetite, etc., were there not other men who had the same normal reason and judgment and this unlimited power, but who were not on all occasions, able to exercise it within a sufficiently limited time, as when in a rage or fury, because of the relative suddenness of the impulse compared to an ever relatively slow mental response? It seemed to him that there were those who always thought and acted quickly—too quickly, others who did so very sluggishly. For instance, those having uncinariasis (hookworm disease), myxedema, etc., belonged to the latter. Alcohol and other drugs primarily caused the former. Difficulty in differentiating each class, could not lessen the facts.

Both professions would be in accord when the legal profession would accept all the causes which produced an equivalent incapacity of mental function, sufficient to establish an irresponsibility morally, or legally. It would include not alone disease of the brain cells calling for the alienist, but disorder or derangement of brain function from toxic, reflex or other conditions; cases curable by diet, by eye and other corrections, by teeth extractions, by removal of organs, by serum, antitoxic, or other methods.

R. K. Updegraff said that in view of the interest shown by the chairman of the Section, as to the duration of the disorder in these patients before they received hospital treatment, the following considerations might not be out of order, although not directly related to "Tests of Insanity." The well known objections of patients and their friends to confinement in, or commitment to, State hospitals devoted exclusively to the care of the insane, was based on the fact, or the assumption, that certain stigmata forever attached to anyone having therein resided, and further to a dread of the formality of such commitment and its *apparent* irrevocability. These objections, whether valid or not, were strong enough to prevent the removal of the patients during that *early* part of their illness, which in the opinion of alienists, offered the greatest probability of rapid improvement or lasting recovery under proper care and surroundings. There was no claim of originality in the idea that there would be many advantages associated with the establishment of wards, annexes or pavilions for the care of these people, in connection with the general hospitals. It would require additional and separate accommodations and more work on the part of these hospitals, but as they were now before the City Council asking for a special tax levy and might then go before the County Commissioners, this objection did not seem final. Few patients would object to such residence and early study of their condition. Many cases of acute alcoholism would receive adequate treatment instead of the actual maltreatment they now notoriously encountered, riding in ambulances or patrol

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wagons from hospital to hospital, seeking admittance. Many border-line cases, as the hysterias, could here be seen by the men who work miracles in specialties and could be promptly returned to acclaiming friends with refracted eyes or washed-out stomachs. From the standpoint of medical education, society had little to fear from a hospital interne seeing as many cases of sick mind as of sick appendix. This he certainly did not, at present, do. Under a plan, similar to that for contagious diseases, at the City Hospital, patients might remain under the supervision of their former medical attendant if it were deemed desirable or convenient. This would remove the last incentive to comply with the exorbitant demands of many private sanatoria. The State hospitals would be relieved of this great mass that kept the wards overcrowded and the assistants overworked, and would leave to them their legitimate field of caring for the chronic and incurable insane. This was not a discussion of treatment received in State institutions. From his superficial knowledge of these hospitals he believed they were better in equipped, in men and surroundings, for the care of these patients at all stages of their illness than any general or private hospital could hope to be, but the manifest advantages of earlier treatment, easier to procure, might deserve consideration. From the medical and social side, there would be immense advantages—from the legal and financial side there might be insurmountable difficulties. It had been said that education would displace the reluctance of people generally to enter hospitals for the insane. Surely this plan could only hasten such education, and in the *meantime* might save some minds. He would like to ask whether, in the opinion of the chairman, and of the superintendents of State hospitals and other alienists present, either the State or the individual patient would gain under such a plan, and further, if their opinion should happen to be in the affirmative, whether an endorsement of that position, by this Section, would aid the movement?

Judge Hadden said that by an act of the Legislature, passed April 27, 1908, it was provided that, upon the request of the Probate Judge of any county, the County Commissioners might establish a place to be known as the Detention Hospital for alleged insane persons, which should consist of a hospital or ward or other suitable place available for this purpose, which should be in close proximity to the Probate Court, and which should be under the supervision of a superintendent who should be a registered physician, appointed by the Probate Judge, and such other assistants as might be required, who should be appointed by the superintendent with the approval of the Probate Judge.

The act further provided, however, that in counties where a municipality owned and controlled a hospital, the County Commissioners might contract with the authorities having charge and control thereof, for the care of such alleged insane persons. The act also provided that the Probate Judge should have power to commit to such hospital, all persons brought before him alleged to be insane, whose cases were doubtful, or whose insanity was likely to be temporary, and also all insane persons who could not be committed to or received into the State asylum.

The duration of the stay of such patients in such hospital should be determined by the superintendent and the Probate Judge, and should depend upon the finding either that the patient was cured or was a fit subject for the State asylum.

The act also provided that the inmates of such hospital should be under the guardianship of the person or persons in charge of the Detention hospital; that they should have the privilege of freely communicating with their relatives, friends, physicians and legal advisers without censorship, and might receive visits from them, except as the same were deemed inadvisable by the superintendent. A physician, however, representing the family or patient, should be admitted at all times.

Pursuant to this act a request for the establishment of this hospital was duly made, and an effort made at a conference between the Director of Charities and Corrections, the City Solicitor, the County Commissioners, and the Probate Judge, for an arrangement such as the act contem-

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plated, between the city and the county. Owing, however, to the questions in litigation as to the financial responsibility of the county to the city for caring for defective persons, no conclusion had been reached. The matter had been taken up recently by the commissioners, and the earnest support of all members of both professions was earnestly solicited.

Clinical and Pathological Section

The sixty-third regular meeting was held at the Cleveland Medical Library, Friday, November 5, 1909, W. B. Laffer in the chair.

C. A. Hamann reported a case of polyserositis. The patient, a male aet. 20, presented himself in June, 1909, complaining of dyspnea and enlargement of the abdomen. His face and hands were somewhat cyanotic. There was considerable free fluid in the peritoneal cavity, both sides of the chest were dull posteriorly, and the area of precordial dulness seemed to be increased. The pulse was small and feeble. No evidences of valvular cardiac disease or of pericardial adhesions were found. There was no fever.

Paracentesis abdominis was resorted to and about one gallon of clear fluid was withdrawn; at this time the liver and spleen seemed normal in size. Paracentesis pericardii was then performed but no fluid was found.

The ascitic fluid reaccumulated and a laparotomy was done, under the suspicion that it might be a case of tuberculous peritonitis. There were no tubercles on the peritoneum however. The omentum was stitched to the parietal peritoneum, as in the Talma-Morrison operation. At the time of this report there was again considerable free fluid in the abdomen. The liver was distinctly enlarged and quite hard.

In view of the circulatory disturbances (cyanosis, small pulse, etc.) which were probably due to pericardial adhesions and mediastinitis, increased area of precordial dulness (due to pericardial and mediastinal thickening), dulness over both sides of chest posteriorly (pleural thickening) ascites and the enlargement and increase in hardness of the liver, he ventured to regard the case as one of polyserositis or indurative mediastino-pericarditis or "Zuckergussleber" (Curschmann) as the affection was variously termed.

D. R. Wood showed a case which he considered blastomycosis, of five years' duration, in an adult male. The knee was first attacked, then a rib, later the arm, while at this time there was an extensive lesion over the manubrium sterni.

The program was as follows:

1. Inflammation and Suppuration of the Omentum, C. A. Hamann. (Appearing in full on page 759).

H. B. Ormsby asked if this condition might not be due to imperfectly sterilized catgut.

C. A. Hamann said that infection from the catgut was a possible cause but in many of the cases he had reviewed the omentum had been ligated with silk. This complication, omental infection, was not very rare.

2. Placenta Praevia, A. H. Bill. (Appearing in full on page 762).

A. J. Skeel, in the discussion, said that all the old methods depended upon pressure to stop the hemorrhages and this interfered with the oxygenation of blood for the child; hence the high fetal mortality. In all cases in which vaginal Cesarean section was done abdominal Cesarean could be done better. It should be done early and was indicated when too much manipulation had not been done and when there was not too much hemorrhage. He referred to three cases which he had seen in which it was too late to do Cesarean section; it is very important to get these cases to the hospital early so that this could be done if necessary.

H. H. Powell wished to say that there were exceedingly few cases that needed Cesarean section if the proper methods had been carried out.

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It was not always easy to determine whether a placenta praevia was central or lateral. He cautioned about turning to Cesarean section and forgetting other methods. A man in general practise would see only one case in 800 births. Knowing the good results of surgery the physician at once turned to the surgeon who did not examine the case carefully but operated at once; if he had called an obstetrician the case would have been viewed from every standpoint. He cautioned against the surgeon encroaching upon the field of the obstetrician. The personal factor was an important question as some women would die if little blood were lost. He objected to A. J. Skeel's point as to pressure, this came on a small portion of the placenta only, whereas one-half of the placenta was enough to keep up the circulation of the child.

J. Goldfinger spoke of a case of placenta praevia lateralis in which, while he was rupturing the membranes and packing the cervix, the child died from pressure on the cord or on the placenta which was attached low. Most of the cases that the obstetrician saw were so exsanguinated that Cesarean section was not indicated, and version or other procedure would give the best result.

J. J. Thomas said that in the treatment of placenta praevia the most important thing was the recognition of the condition. Hemorrhage in the latter part of pregnancy was nearly always due to it. Often slight hemorrhage was overlooked by the physician. He agreed with A. H. Bill that in central placenta praevia, abdominal Cesarean section was indicated. In the other forms simpler measures would do. He thought that sometimes the child died from the first loss of blood.

E. O. Houck said that in reply to the criticism that the methods advocated in his paper were largely surgical, he could only affirm the contrary. In a given series of cases of contracted pelvis treated by the expectant plan and in another series in which prophylactic measures were more generally employed, fewer surgical operations would be performed in the former group. He quite agreed with H. H. Powell that too great reliance should not be placed upon pelvic measurements. In a given case of contracted pelvis, even of the severest form, one could not estimate what the dynamic power of the patient would accomplish. A. H. Bill's suggestion regarding secondary hebotomy, or rather hebosteotomy, was a good one. He was quite aware that not all physicians would take the same stand regarding craniotomy upon the live child, as he did. Personally while admitting that his objection to its performance was largely a moral one, yet he contended that it was never indicated because of pelvic contracture per se and especially when such contraction was not observed until the patient was well advanced in labor. He did not think the unborn babe should be the innocent victim of a careless accoucheur. The principles advocated in this paper were by no means new; Spiegelberg, in 1854, called attention to the bad results attending the use of prophylactic measures.

A. H. Bill stated that he did not advocate Cesarean section in all cases. In certain ones the first hemorrhage was fatal. In a certain number there was only a slight hemorrhage and the patient was in good condition. Abdominal Cesarean section gave the best results, all the other methods gave a fetal mortality of 50%. In the central form the mortality was 60% or more. All examinations made in placenta praevia should be made with aseptic precautions so that an operation could be done under the best conditions. Within three months he had known of eight cases in Cleveland, six lateral; of these eight, six babies and two mothers died; the only two living babies were delivered by Cesarean section. The natural way to deliver a baby was through the membranes and not through the placenta; if the placenta lay below, delivery from above was preferable.

3. Treatment of Labor in Contracted Pelvis, E. O. Houck. (To appear in full in the Journal.)

4. The Technic of Cesarean Section, G. W. Crile. (Appearing in full on page 773.

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A. H. Bill, in discussing the last two papers, said that as to the induction of premature labor the tendency was to do away with it because of danger to the fetus. Abroad it had been abandoned, but in this country it was still done. It was limited to the thirty-eighth week. After version was performed, sometimes pubiotomy could be done and a living child delivered; this he had done in two cases. He sometimes thought that a version was contraindicated unless preparation for a pubiotomy had been made.

H. H. Powell mentioned the difficulty of accurately measuring the pelvis. It was hard to determine exactly the size of the child's head. At eight months the best method was to press the head down from above into the pelvis; if it entered the brim he would allow the patient to go to term; if it did not a contraction of the pelvis was probably present. There should be no difficulty in rearing babies born after the thirty-sixth week.

A. J. Skeel said that one was apt to get a wrong impression from statistics on this question since there were different forms of contracted pelvis requiring different procedures. Good results were usually obtained from premature induction of labor in most cases.

J. J. Thomas agreed that few babies prematurely delivered after the thirty-sixth week would die if properly cared for.

Experimental Medicine Section.

The forty-fifth meeting was held at the Cleveland Medical Library Friday, Nov. 12, 1909, G. W. Crile in the chair.

The program was as follows:

1. The Cause of the Coagulation of the Blood, W. H. Howell, Prof. of Physiology, Johns Hopkins University, Baltimore. (To appear in full in the Journal.)

G. N. Stewart, in the discussion, raised the point whether the well known affinity of fibrin for various ferments might possibly have a bearing upon the fact that the smallest quantities of thrombin employed produced very incomplete coagulation no matter how long time was allowed, even if it could not entirely account for the apparent proportion between the different quantities of thrombin and the resulting amount of fibrin. That was to say, in the experiments in which the smaller amounts of ferment were employed the absorbing influence of the fibrin might remove such a large part of the thrombin as to bring the reaction apparently to an end while much fibrinogen still remained in solution and to simulate a chemical union in equivalent proportions. It should also be remembered that the general rule that all ferments were destroyed by heating to the boiling point, or even less, seemed to have certain exceptions.

The fact that an extract of tissue, made after its blood-vessels had been washed free from blood, and which supposedly contained thrombokinase, seemed to possess no more influence upon the clotting than did the addition of indifferent powders, did not necessarily prove the absence of a specific substance affecting coagulation from such an extract, since the "surface factor," associated with their colloid condition, seemed to have an important bearing upon the action of ferments, and this factor might equally well be exercised by an indifferent powder.

He desired also to ask whether it was possible that varying conditions of stability of fibrinogen solutions might exist, whereby one solution might readily clot, while, under apparently similar conditions, another might fail to do so? Even if artificial solutions of fibrinogen possessed a relatively uniform degree of stability was it not possible that in the blood the change from fibrinogen to fibrin might sometimes be more easily determined than at other times even when the external conditions and the quantity of thrombin and calcium were the same. He was led to put this question because some time ago he had occasion to examine

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some blood obtained from a case of potassium cyanid poisoning. There was no question that the blood had not clotted; it was entire non-defibrinated blood. By none of the methods tried (addition of calcium chlorid in various proportions, dilution with water, addition of fibrin ferment, addition of blood clot) could any clotting be obtained in the blood or the plasma separated from it, either before or after evacuation for 24 hours in vacuo. In order to obtain the most favorable conditions for coagulation, varying proportions of the blood and plasma were also mixed with fresh dog's blood drawn directly from the carotid artery. Here also the results were negative. Clotting of the dog's blood occurred just as rapidly and completely in the presence of the human blood as in the control tube containing dog's blood alone. But although the human fibrinogen was everywhere intimately mixed with the dog's fibrinogen while it was clotting, the fibrin formed represented only the dog's fibrinogen. Active fibrin ferment and the proper proportion of calcium must have been present, else the dog's fibrinogen would not have clotted. The incoagulability of the human fibrinogen was not due to the presence of an antithrombin or any other "restraining" substance since it must have equally prevented the formation of dog's fibrin. Apparently, then, it was the human fibrinogen which was at fault; for some reason, connected with the cyanid action, its solution was abnormally stable.

In reply, Prof. Howell agreed that the somewhat disappointing experiments reported by Schmidt to demonstrate that thrombin might be used again and again in clotting fibrinogen, might have been due to its gradual removal from the serum used by adsorption union with the fibrin formed. He emphasized again, however, the point made in his paper, that the two main reasons advanced by Schmidt in favor of the view that thrombin was a ferment, namely, its thermolability and the fact that it did not disappear in the reaction which it caused, were not supported by Rettger's experiments. With regard to the second suggestion made by Prof. Stewart in regard to the kinase present in tissues, he thought that the burden of proof should rest upon those who claimed its existence as a specific organic activator in the tissues. Since physical factors alone sufficed, under the conditions of the experiments discussed, to induce clotting the possibility that such factors comprised the activating effect of tissue extracts should first be excluded before the presence of a specific kinase was assumed. In regard to the interesting case of loss of coagulability in human blood after cyanid poisoning, he could venture no explanation. Fibrinogen as prepared from mammalian blood showed always the power of clotting when acted upon by thrombin, but in such cases a uniform method of preparing the fibrinogen was adopted and presumably healthy animals were used. In the specimen of blood described by Prof. Stewart it would have been interesting to have tested for the presence of fibrinogen and if present to have prepared it in pure condition from the plasma.

Academy Meeting.

The seventieth regular meeting was held at the Cleveland Medical Library, Friday, November 19, 1909, the Vice-President, H. B. Ormsby, in the chair.

The report of the Nominating Committee, naming the candidates for election at the annual meeting, was read by the Chairman of the Committee, A. F. House.

Notice of a proposed amendment to Chap. IV, Sec. 2 of the Constitution, raising the annual dues of active members from $4.00 to $5.00, was read by the Secretary.

W. H. Humiston presented a specimen of cystic degeneration of the kidney removed from a woman aged 26. Urinalysis had been negative. The patient had had severe vomiting attacks and had lost 28 lbs. in four years.

The program was as follows:

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1. Demonstration of the Accessory Sinuses of the Nose with Lantern Slides, S. H. Large.

2. Some Surgical Procedures Designed for the Relief and Cure of Certain Diseases of the Colon, Sigmoid Flexure and Anus, Samuel G. Gant, New York.

Special attention was paid to operative measures for the relief of prolapse of the rectum; to the technic of appendicostomy and appendicocecostomy for purposes of irrigation of both the large and small bowel; and to the speaker's method of removal of the coccyx and the formation and closure of artificial anus. The paper was illustrated by means of a number of excellent drawings showing the various steps in the operations described and by some ingenious apparatus, devised by the speaker for use with these operations.

A. F. House, in the discussion, said that while he had had satisfactory results with the older methods of performing colostomy, he had been greatly pleased to see the improved methods which had been devised by the speaker as a result of his great experience and inventive genius.

3. Some Activities of the Public Health Service in Relation to Scientific Investigations, J. W. Kerr, Public Health and Marine Hospital Service, Washington, D. C. (Appearing in full on page 729.)

Book Reviews.

The Principles of Pharmacy. By Henry V. Arny, Ph. G., Ph.D., Professor of Pharmacy at the Cleveland School of Pharmacy, Pharmacy Department of Western Reserve University. Octavo of 1,175 pages, with 246 illustrations, mostly original. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, $5.00 net; Half Morocco, $6.50 net.

With the approach of another revision of the United States Pharmacopoeia, the appearance of a new textbook of pharmacy is especially interesting not only to the pharmaceutical, but also to the medical profession. The work of Prof. Arny, however, would deserve a place in the physician's reference library, under any circumstances. Its scope, as well as its virtues and its limitations, are all implied by the single sentence of the author: "The frank intention of this book is to explain the pharmacopoeia from its pharmaceutical standpoint." In carrying out this intention, the author has not confined himself to discussing and explaining the pharmaceutical operations and preparations; but he has also introduced chapters on systematic chemistry, inorganic and organic; the official descriptions of chemicals, alkaloids, etc.; a rather extensive materia medica of crude organic drugs; an excellent chapter on pharmaceutical testing and assaying, etc. In brief, the book touches more or less upon every phase of professional knowledge which the pharmacist is supposed to possess. This conforms to a general custom for which Prof. Arny is not primarily responsible—to a method of instruction which has been widely used in pharmaceutical education, and which appears to have yielded good results, especially in the hands of enthusiastic teachers, such as Prof. Arny. This need not mean, however, that the custom or method or arrangement are really the ideal. It is quite impossible to cover all these matters adequately in a single volume. Some must be treated in a very superficial manner; in this case the chemistry and materia medica. Is such a superficial treatment of any real value to the student or reader? Or does it not rather engender and encourage habits of superficiality, as well as confusion and misconception? The careful student must seek his information in these sciences in special books or courses—why not take this knowledge for granted, or force the student to go to the appropriate source? In our opinion, it would have been more logical to omit the greater part of Parts III and IV, relating to inorganic and organic chemistry; and to confine the text to the discussion and explanation of galenical preparations, and of the operations of pharmaceutical manufacturing (chemical as well as galenical), and dispensing. The chapter on pharmaceutical testing is so excellent that it

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should be retained in any case. The laboratory exercises are, of course, very appropriate.

These conceptions as to the proper scope of the "Principles of Pharmacy" are perhaps only matters of personal opinion and theoretical interest —for everyone is at liberty to pass over the chapters of whose admission he does not approve. In any case, they are the only adverse criticism which we would offer.

On the other hand, the chapters which relate to pharmacy proper (Parts I and II), have been treated extremely well. They contain all the information of the pharmacopoeia, for the most part in the original text, with much additional information, as well as explanation. The matter is presented simply and clearly; concisely, but sufficiently for all practical purposes. The arrangement is logical and, we believe, unsurpassed for avoiding the useless and confusing repetitions of the pharmacopoeia—indeed the latter might well take some hints from the present book. The clear and simple presentation of the usually difficult subject of pharmaceutical testing (Part V), is especially commendable.

Part VI, "The Prescription," deals mainly with pharmaceutical Latin and with incompatibility. We believe that this, the most important field of professional pharmacy, could be emphasized, with advantage, by the introduction of more laboratory exercises. The exercises which are described in Part VII relate to manufacturing. We do not feel competent to offer criticism on these, but they appear to be excellently adapted to the purpose. The index is full and practical. T. S.

A Practical Treatise on Diseases of the Skin. For the Use of Students and Practitioners. By J. Nevins Hyde, A. M., M. D., Professor of Dermatology and Venereal Diseases in the University of Chicago, Medical Department (Rush Medical College). New (8th) edition, thoroughly revised and much enlarged. In one very handsomely octavo volume of about 1,137 pages, with 223 engravings and 58 full-page plates, in colors and monochrome. Cloth, $5.00 net; leather, $6.00 net. Lea & Febiger, Philadelphia and New York, 1909.

The work begins with the preliminary subjects in the study of diseases of the skin. In a comprehensive treatise of this character this seems advisable, although seldom consulted by the physician it is of the highest importance to students of medicine in beginning their work in dermatology. The anatomy and physiology of the skin are dealt with in a sufficiently complete manner and are illustrated by good cuts. General symptomatology, etiology, pathology and diagnosis are then touched upon, together with a few words on the general prognosis and therapeutics employed in the treatment of skin diseases. Then comes the subject proper of the work, beginning with the milder manifestations of cutaneous diseases, such as the erythemata and urticaria, which are followed by the inflammations of the skin, such as eczema and the various forms of dermatitis. After the more acute inflammations have been considered, the writer takes up psoriasis, pityriasis, and lichen. Then come the diseases of the skin due to local contagion, such as impetigo, furunculosis, erysipelas, etc. The so-called neuroses, or diseases of the skin associated with nerve changes come next, such as herpes and dermatitis herpetiformis. Following are the bullous eruptions of which pemphigus is a type. These are discussed briefly, although sufficiently lucidly for practical purposes. Twenty-nine pages are devoted to the exanthemata, with some remarkably good illustrations of variola, showing the characteristic eruption of the disease in a most striking manner. Nearly two pages are devoted to Rocky Mountain spotted fever, which of late has attracted considerable interest in the western part of our country.

Cutaneous hemorrhages are briefly touched upon. Then come the hypertrophic diseases of the skin, such as the keratoses, naevi, ichthyosis, followed by the peculiar changes in the skin, such as are met with in scleroderma. Atrophic diseases of the skin follow, in which kraurosis vulvae is described, together with an extensive bibliography of this disease. Perforating ulcer of the foot is illustrated by an excellent plate.

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Anomalies of pigmentation, most conspicuous of which is vitiligo, are illustrated with several striking photographs. New growths, including lupus and carcinoma are considered in a masterly manner and are very profusely illustrated, showing both clinical lesions and the microscopic findings.

About 62 pages are devoted to various cutaneous manifestations of syphilis, including chancroid, illustrated by numerous photographs and colored plates. The next class of affections considered are the sensory dermatoneuroses, in which pruritis is given full consideration. There is no disease about which the general practitioner is more anxious to receive suggestions, and especially from so skilled a clinician. Then come the parasitic affections, both vegetable and animal; followed by disorders of the appendages of the skin, including the hair and nails, associated with and often secondary to deep-seated disturbances in the follicles of the skin, as seen in acne and seborrhea.

The author has added to the preceding edition 250 pages devoted to diseases of warm countries and the tropics; this addition has become more necessary to physicians of this country since our acquisition of the Philippines and our more intimate relation with Cuba and the Canal Zone. In this group of diseases, leprosy receives due consideration, with some excellent illustrations. Yaws and pellagra, which latter is classed under tropical diseases of uncertain nature, are considered. It is to be regretted that the article on pellagra was in press before the disease was recognized in this country, although the article contains nearly all that is definitely known on the subject. In reading the work one is impressed with the lucid style and thoroughness with which the work is compiled. Largely drawn from the author's wide experience as a clinical teacher, the essential points are conspicuously brought out, while the less important and more obscure affections are given but brief mention. Upon the whole the work, which is the most voluminous of any American writer on this department of medicine, reflects the highest credit and may be unqualifiedly recommended to both students and practitioners of medicine.

W. T. C.

A Manual of Otology. By Gorham Bacon, A. M., M. D., Professor of Otology in the College of Physicians and Surgeons, Columbia University, New York. With an Introductory Chapter by Clarence J. Blake, M. D., Professor of Otology in the Harvard Medical School, Boston. New (5th) edition, thoroughly revised. 12mo, 500 pages, 147 engravings and 12 plates. Cloth, $2.25, net. Lea and Febiger, Philadelphia and New York, 1909.

That this manual of otology has gone through five editions speaks well for its usefulness as well as its popularity. The advantage of successive editions and revisions is well exemplified in the reading matter. The style is clear and concise and the whole book a model of compactness. It is intended primarily as a manual for students but should be of great value to the man in general practise as well. To the specialist its value would be more questionable, as much of the subject matter is too condensed and fragmentary to afford the information desired. The difficulty of providing a book suitable to all readers is at once apparent and Dr Bacon has done well to set out with one definite aim and to cling consistently to it. Dr Blake well says in his introductory chapter that the demand for elaborate textbooks has resulted in their numerous production, and at the same time has awakened both in the student and the practitioner the desire for more compact compilations which afford in a small and conveniently accessible compass the information most desirable from a practical point of view."

The present book contains much of value which has come into use since the last edition was published. The author recommends very decidedly the enucleation of the tonsils in preference to tonsillotomy. The former operation seems to be the operation of choice of the American profession at least, today. The submucous resection of the septum is also carefully described.

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To the reviewer the inclusion of chronic catarrhal otitis and otosclerosis under the same pathological entity and the discussion of them together seems questionable. This is hardly the view of the majority of otologists at the present time. Such discussion, too, must leave in the mind of the student a rather confused picture of the conditions at hand. Certainly a discussion of these two processes in separate chapters would have conduced more to clearness. More space also might well have been given to the chapter on otitis interna.

The chapter on nasal diseases is clear, concise, and well included in a work of this character. It is rather difficult to see, however, how any man at the present stage of nasal surgery can recommend the Asch operation for deflections of the septum. The objection to the submucous resection is that it is an operation that requires special skill while "for the surgeon who operates infrequently and for one of limited experience, operations of the Asch type are indicated." The same line of reasoning might prompt the practitioner to perform tonsillotomy in preference to referring his cases to the specialist for tonsillectomy. If the otologist is not a rhinologist as well he should not attempt nasal surgery but should refer such cases to some man more competent to care for them.

The above criticisms, however, are but slight objections to a work of such uniform excellence. The book can be recommended most heartily, first of all and more especially to the student, but also to the practitioner. Not the least helpful feature of the manual are the many excellent illustrations. W. B. C.

A Textbook of Practical Therapeutics. With especial reference to the application of remedial measures to disease and their employment upon a rational basis. By Hobart Amory Hare, M. D., Professor of Therapeutics in the Jefferson Medical College of Philadelphia. Thirteenth edition, thoroughly revised. Octavo, 951 pages, with 122 engravings, and 4 full-page colored plates. Cloth, $4.00, net; leather, $5.00, net; half morocco, $5.50, net. Lea & Febiger, Philadelphia and New York, 1909.

This, the thirteenth edition of Dr Hare's work, maintains the high standard of its predecessors, and embodies much of the personal experience of its author. It consists of four divisions: (1) General Therapeutical Considerations, comprising about 50 pages; (2) Drugs, 450 pages; while about 100 pages are devoted to (3) Other Remedial Measures, and the Feeding of the Sick; (4) a concise and most satisfactory summary of the Treatment of Disease in general, while indices of drugs and of diseases and their remedies complete the volume. The newer remedies are quite fully discussed, and newer applications of standard remedies, as of urotropin as a prophylactic of cholecystitis in enteric fever and its use in traumatism and infection of the brain and cord, are noted. While of especial value to the student, its eminently practical tone renders it almost indispensable to the physician. J. B. M.

A Practical Treatise on Rectal Diseases, Their Diagnosis and Treatment by Ambulant Methods. By Jacob Dissinger Albright, M. D., Philadelphia. With 32 plates, four of which are in colors, and 39 illustrations throughout the text. Price, $4.00, cloth; $5.00, full flexible leather. Published by the author, Philadelphia, Pa.

This book is an attempt by the author to demonstrate by methods he describes that the majority of cases of rectal diseases can be safely and conservatively handled in the physician's office. The advantages claimed by the author for his patients are non-interruption of business and the use of local anesthetics as against a stay in a hospital with the discomforts of general anesthesia. It is confessed, however, that so little in the way of operative procedure is done at any one office visit, that the length of treatment in office work is much increased over that required in hospital practise.

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The chapter on local anesthesia in rectal surgery is well written with conservative claims as to the results to be expected.

The author regards chronic proctitis as at the bottom of most rectal troubles, and considers a proper understanding of its significance and possible sequelae most important. He describes so-called submucous and subtegumentary channels which are formed in the perirectal tissue in proctitis by the burrowing of inflammatory exudate from the inflamed rectal wall, and illustrates his theory by several x-ray photographs of such sinuses injected with bismuth paste.

Hemorrhoids, pruritus ani and fissura ani are viewed by the author as the direct results of chronic proctitis, in fact he considers proctitis as their most frequent cause.

Under the treatment of hemorrhoids, the author considers the methods of injection, ligation, excision and electrical cataphoresis, with indications for each.

The office treatment described for fistula is a partial opening of the fistulous tract at each visit, allowing time enough between visits for the portion previously opened to heal. Other methods, including injection by bismuth paste, are given.

The chapter on constipation is excellent. H. L. S.

Tuberculosis, a Preventable and Curable Disease. Modern Methods for the Solution of the Tuberculosis Problem. By S. Adolphus Knopf, M. D., Professor of Phthisio-Therapy at the New York Post-Graduate Medical School and Hospital; Associate Director of the Clinic for Pulmonary Diseases of the Health Department; Attending Physician to the Riverside Sanatorium for Consumptives of the City of New York. etc. Moffat, Yard and Company, New York, 1909.

It would seem as if authorities in other branches of medical science might well emulate the example of this author in addressing to an equally large audience the results of their investigations. As outlined in the preface the book is intended to be helpful to the patient and those living or associating with the tuberculous, to the physician and the nurse, to the hygienist and the sanitarian, to municipal and health authorities of our cities, to legislators and statemen, to the employer of men and women, to the public press and other educators, to the clergy, philanthropists, charitable individuals and charity organizations, and to the public at large. Naturally the subject is not dealt with technically on the medical side, nor could other specialists write on their subjects for so various an audience in purely professional phrases; yet, from the promptness with which this book has been absorbed, it can be seen that the public welcomes such opportunities.

The thoroughness with which Dr Knopf has covered all sides of his subject is very noticeable. Every detail of treatment is presented for all classes of patients, the public duty of the physician indicated, the importance of prophylaxsis emphasized, and the possibilities of the anti-tuberculosis work through cooperation made clear.

Statements are not merely made as to economic loss through lack of care for the tuberculous but are graphically fortified with figures and present unhygienic methods are not criticized unless the remedial suggestion follows.

The book is essentially optimistic and encouraging and thoroughly readable. P. W. H.

The Medical Record Visiting List or Physicians' Diary for 1910. New Revised Edition. Wm. Wood & Co., New York.

This has space for 60 patients a week with columns for charges, ledger page and special memoranda. There are also pages for Consultation Practise, Obstetric Engagements and Practise, Vaccinations, Register of Deaths, Addresses and Cash Account. The handy information at the beginning of the book has been revised to increase the amount of matter calculated to be useful in emergencies, and eliminate such as might better be referred to in the physician's library.

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A Manual of Chemistry. A Guide to Lectures and Laboratory Work for Beginners in Chemistry. A Textbook specially adapted for Students of Medicine, Pharmacy and Dentistry. By W. Simon, Ph. D., M. D., Professor of Chemistry in the College of Physicians and Surgeons, Baltimore, and in the Baltimore College of Dental Surgery; Emeritus Professor in the Maryland College of Pharmacy; and Daniel Base, Ph. D., Professor of Chemistry in the Maryland College of Pharmacy. New (9th) edition, enlarged and thoroughly revised. Octavo, 716 pages, with 78 engravings and 9 colored plates, illustrating 64 of the most important chemical tests. Cloth, $3.00, *net*. Lea & Febiger, Philadelphia and New York, 1909.

This manual aims to include all the chemistry that a medical student need know, comprising the following subjects: chemical physics, principles of chemistry, inorganic chemistry, analytical chemistry qualitative and quantitative, organic chemistry and physiological chemistry. It doubtless presents these topics in as satisfactory a manner as other similar works, or possibly better, but it is an impossibility to treat adequately so many important subjects in the compass of a single volume of ordinary size. As in other textbooks of similar nature, the discussion of physiological chemistry is woefully abbreviated. Barely 100 pages are devoted to this subject, which is of such paramount importance to the modern medical student. Furthermore, the discussion of quantitative methods of urinalysis are not up-to-date, Folin's work being entirely ignored.

The use of structural formulae for a number of inorganic compounds calls for hearty commendation. On the other hand, such formulae are not given in the case of some organic compounds, whereas they are absolutely indispensable to a proper understanding of the same.

There are a number of minor inaccuracies in the book; one of the most serious of these consists in giving COH as the aldehyde group, the proper explanation of the nature of aldehydes coming later under the heading of acids. H. D. H.

Minor and Operative Surgery, Including Bandaging. By Henry R. Wharton, M. D., Prof. of Clinical Surgery in the Woman's Medical College, Philadelphia. New (seventh) edition, enlarged and thoroughly revised, 12mo, 674 pages, with 555 illustrations. Cloth, $3.00 net. Lea & Febiger, Philadelphia and New York, 1909.

From the standpoint of advanced teaching, the reason for the publication of the seventh edition of this work is not apparent. The work is valueless for the practitioner or general surgeon, and fails to inspire the interest of third year students with proper respect for that branch of practise which will engage their attention during the developmental years.

Such modern methods as are discussed are passed over so lightly as to fail to convey to the reader an intelligent appreciation of the subject under consideration.

The illustrations are old and poorly arranged with regard to the text. The bone and ebony handled instruments illustrated have long since passed to the museum of antiquities, and on this account would scarcely create a respect for aseptic methods. The work is not a contribution to modern medicine. C. E. F.

The Physician's Visiting List for 1910. P. Blakiston's Son & Co. (Successors to Lindsay & Blakiston), Philadelphia. Price $1.00, net.

This convenient visiting list has been published yearly for 59 years which shows that it has proved satisfactory. Various styles are issued, for from 25 to 100 patients, the larger ones consisting of two volumes. Besides the space for the visiting list proper, there are special blank pages for other memoranda. A considerable amount of condensed information such as incompatibilities, table of weights and measures, a convenient dose table, etc., is also included.

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The Practical Medicine Series. Under the general editorial charge of Gustavus P. Head, M. D., Professor of Laryngology and Rhinology Chicago Post Graduate Medical School. Volume VI. General Medicine, Edited by Frank Billings, M. S., M. D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago, and J. H. Salisbury, M. D., Professor of Medicine, Illinois Post Graduate Medical School. Series 1909, pp. 358, Chicago. The Year Book Publishers, 40 Dearborn St.

The first 87 pages of this book are devoted to a consideration of the acute infections not treated in volume I of this series on general medicine previously published this year. The remaining pages include the diseases of the alimentary tract, including the liver, pancreas and peritoneum.

In writing such a book great difficulty must be experienced in separating for review the important from the unimportant articles published. The author must guard against the tendency of laying particular stress on the subjects in which he is personally interested. In this volume each subject has received due consideration and the authors have shown excellent judgment in their selection of papers for review. These cover both English and foreign literature. Such a book will serve to refresh the memory of the careful reader of medical literature, and, in some measure at least, to inform those physicians, who either from lack of time or opportunity do little reading, of the more important advances in medicine.

J. P.

The Practical Medicine Series. Comprising ten volumes of the year's progress in medicine and surgery. Volume VII. Pediatrics. Edited by Isaac A. Abt, M. D. Assistant Professor of Medicine (Pediatrics Department), Rush Medical College. With the collaboration of May Michael, M. D. Orthopedic Surgery edited by John Ridlon, A. M., M. D., Professor of Orthopedic Surgery, Northwestern University Medical School. With the collaboration of A. Steindler, M. D. Series 1909. The Year Book Publishers, Chicago, Ill. Price, $1.25.

This volume contains a resumé of recent literature not only of American but of noted foreign authorities. About 30 pages is devoted to the subject of dietetics and the views on this important subject by such authorities as Feer, Czerny, Kellar, Huebner and Finkelstein are quoted at length. Breast nursing is argued and valued more than it is in this country. The danger of feeding and too frequent feedings is shown and the four hour interval or five feedings in 24 hours advocated. When breast milk cannot be obtained simple dilutions of cow's milk at the same intervals is advised. The symptoms and treatment of acute and chronic digestive disurbances is given in detail and appears to be so simple and rational that it will appeal to and may be practised by the general practitioner. Reports on the infectious diseases of children, many with rare complications, will be found of interest and value. About 50 pages is devoted to orthopedic surgery and contains recent abstracts on congenital dislocation of the hip, coxa vara, injuries of the neck of the femur, Pott's disease, scoliosis and infantile paralysis.

A. F. F.

Acknowledgments.

Studies in Rabies. Collected Writings of Nathaniel Garland Keirle, A. M., M. D., D. Sc. Professor of Medical Jurisprudence and Emeritus Professor of Pathology, College of Physicians and Surgeons. Director of the Pasteur Institute, Baltimore, Md. With an Introduction by Wm. H. Welch and a Biographical Sketch by Harry Friedenwald. Testimonial Edition. Baltimore, 1909.

The Century of the Child, Ellen Key, G. P. Putnam Sons.

American Illustrated Medical Dictionary. Fifth revised edition; with new and elaborate tables and many handsome illustrations. By W. A. Newman Dorland, M. D. Large octavo of 876 pages, with 2,000 new terms. W. B. Saunders Co., Philadelphia and London.

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The Principles of Pathology, by J. George Adami, M. A., M. D., LL. D., F. R. S. Professor of Pathology in McGill University, and Pathologist to the Royal Victoria Hospital, Montreal, etc., and Albert G. Nicholls, M. A., M. D., D. Sc., F. R. S. (Can.). Assistant Professor of Pathology and Lecturer in Clinical Medicine in McGill University, etc. Vol. II. Systematic Pathology. With 310 engravings and 15 plates. Lea & Febiger. Philadelphia.

Surgery of Childhood, by Sidney Freeman Wilcox, M. D., Professor of Clinical Surgery, New York Medical College and Hospital for Women. Consulting Surgeon to The New York Hospital for Women, etc. Boericke & Runyan, New York and Philadelphia, 1909.

Biographic Clinics. Vol. VI. Essays Concerning the Influence of Visual Function, Pathologic and Physiologic, Upon the Health of Patients. George M. Gould, M. D. Formerly Editor of American Medicine, etc. P. Blakiston's Son & Co., Philadelphia.

Practical Points in the Use of X-Ray and High-Frequency Currents. By Aspinwall Judd, M. D. Formerly Radiologist New York Post-Graduate Medical School and Hospital, etc. 1909. Rebman Co., New York.

Diseases of the Nose, Throat and Ear, Medical and Surgical. By Wm. Lincoln Ballenger, M. D. Lea & Febiger, Philadelphia and New York.

The Practical Medicine Series. Vol. VIII. Materia Medica and Therapeutics, Preventive Medicine, Climatology. Edited by G. F. Butler, Ph. G., M. D., H. B. Favill, A. B., M. D., Norman Bridge, A. M., M. D. Series 1909. Year Book Publishers, Chicago, Ill.

Medical Gynecology. Second revised edition. By S. Wyllis Bandler, M. D. Octavo of 702 pages, with 150 original illustrations. W. B. Saunders Co., Philadelphia and London.

Principles of Hygiene: For Students, Physicians, and Health Officers. Third revised edition. Octavo of 555 pages, illustrated. By D. H. Bergey, M. D. W. B. Saunders Co., Philadelphia and London.

Text-Book of Modern Materia Medica and Therapeutics. Fifth revised edition. Octavo of 675 pages. By A. A. Stevens, M. D. W. B. Saunders Co., Philadelphia and London.

Diseases of Infants and Children. By Henry Dwight Chapin, A. M., M. D. and Godfrey Roger Pisek, M. D. With 179 illustrations and 11 colored plates. Wm. Wood & Co., New York. Price $4.50 net.

Preventable Diseases. By Woods Hutchinson, A. M., M. D. Houghton Mifflin Co. Boston and New York.

Functional Diagnosis, the Application of Physiology to Diagnosis. By Thomas G. Atkinson, M. D., Associate Professor of Neurology and Physiology, Chicago College of Medicine and Surgery; etc. Chicago Medical Book Co.

The Medical Complications, Accidents and Sequels of Typhoid Fever and the other Exanthemata. H. A. Hare, M. D., B. Sc. and E. J. G. Beardsley, M. D., L. R. C. P., Philadelphia. Second edition, thoroughly revised and much enlarged. Octavo, 398 pages, with 26 engravings and 2 plates. Lea & Febiger, Philadelphia and New York, 1909.

Cancer and Sarcoma. By H. D. Walker, M. D., Buffalo, N. Y.

Public Health and Marine-Hospital Service of the United States. Bulletin No. 57 and other publications.

Fifty-Seven Varieties of Medical and Ophthalmic Blunders. By George M. Gould, M. D., Ithaca, N. Y.

The Enzyme Treatment for Cancer. By William Seaman Bainbridge, A. M., Sc. D., M. D.

Reprints from:

Hunter Robb, M. D., Cleveland, Ohio.

Bryan D. Sheedy, M. D., New York.

W. T. Briggs, M. D., Nashville, Tenn.

Laertus Connor, M. D., Detroit, Mich.

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Correspondence.

Letter From Dr Jacobi Concerning the Advertising Schemes of the New Editor of "Pediatrics."

19 East 47th Street, New York,
Nov. 21st, 1909.

To the Editor of The Cleveland Medical Journal:

DEAR SIR: I request you to insert in your very next issue, if possible, this protest of mine against an attempt on the part of William Edward Fitch, M. D., the new Editor of "Pediatrics," to use my name as that of a renegade from decent professional behavior. In the first number controlled by him, he places, without my permission or consent, my name at the head of his "Editorial Council," whatever that may mean. His introductory chapter on "advertising in pediatrics" sneers at those who look upon "all advertising as venal muck" that would soil their "pharisaical fingers," and whom he calls "pharisaical pariahs," etc., and invites the "liberal patronage of legitimate advertisers." The editor might have known that I approve of purity and ethics in the medical profession, as represented in such of its magazines as are not meretricious, and of its aversion to the advertising of nostrums.

I shall thank you for publishing the following copy of a letter I sent to Dr Fitch on November 19th:

"Dear Sir: I never read your first number until my attention was called to it by a Western correspondent. In using my name as a member of your 'Editorial Council' you made a mistake and committed a wrong. I never gave you permission; you never asked for it. In shaping your policy, I am sure you never consulted anybody who cares for the editorial standing and progress of the profession. That policy of yours may be successful from a financial point of view, which I doubt, however; for what you gain in advertisers, you will lose in readers and friends. It is an abomination. Please remove my name from the place it now occupies and have the goodness to tell your readers of your mistake.

"Yours truly, "A. JACOBI."

During the afternoon of November 22nd I received the following reply:

"Dr. Abraham Jacobi, 19 E. 47th St., New York City.

"Dear Dr: In reference to our telephone conversation of a few moments ago as stated, I now advise that I interpreted your letter in reply to my letter of Sept. 15th to mean that you were willing to become a collaborator to the New Pediatrics. It seems that I misunderstood the purport of your letter, for which I am exceedingly sorry since you would be the last gentleman in the world that we would care to offend, and we beg to assure you, dear Doctor, that no offence, discourtesy, or anything of the kind was intended, and it will be our pleasure in our next issue (December) to make the necessary explanation and remove your name from the place it now occupies.

"Regretting the occurrence and imploring your forgiveness, the writer begs to remain,

"Most sincerely and respectfully yours,
"W. E. FITCH, M. D.
"Editor of Pediatrics."

I am sorry to say that the courteous tone of this letter does not improve Dr Fitch's position as a promoter of unethical advertising, nor that of his magazine, as a worthy part of medical literature.

Very respectfully yours, A. JACOBI.

The editorial in question which appears in the October issue of *Pediatrics* is as follows:

"ADVERTISING IN PEDIATRICS.—We hold that the advertising pages of every scientific publication is entitled to a "square deal." It is a much to be deplored fact now-a-days that some of the editors of quasi medical official organs look upon all advertising as venal muck, and make believe they would shun it as something that would soil their pharisaical fingers,

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but they know, or at least they ought to know, that the advertising pages of every medical publication are a desirable feature, not only from the source of revenue whereby the subscription price is kept within reasonable price, but because of the valuable information they should and do offer to those who search the advertising pages with discriminating intelligence. This, the American physician is capable of doing without any paternal supervision, or what not. No medical publication of any standing today could have achieved its present success without the substantial aid of the liberal advertiser, and it is a deplorable fact that many of the advertisers, so freely attacked, and unjustly condemned by those pharisaical pariahs, were once eagerly sought and their money gladly accepted as *quid pro quio* for legitimate business. It is safe to assert, without fear of contradiction, that the medical profession has been greatly benefited from the gradual and increasing growth of the American Medical press—made possible by the liberal patronage of the legitimate advertisers. Therefore, in our humble opinion it is infinitesimally small to belittle medical advertising simply because one "higher up" orders it done. The history of every medical preparation or appliance advertised to the medical profession during the past fifty years proves beyond peradventure of a doubt that only meritorious preparations have stood the test of time and won favor in the hands of the profession. It is true that many preparations have fallen into innocuous desuetude, which shows that the medical profession is thoroughly capable of taking care of itself without any manner of paternal supervision from cliques or combinations."

The following rules, to which all advertising must conform, have been adopted by *Pediatrics:*

"1st—No advertisement will appear in the advertising section of PEDIATRICS exploiting any pharmaceutical product, the manufacturers or proprietors of which do not freely and accurately give the exact character and ingredients entering into or forming its component parts.

"2nd—Any advertisement containing dangerous or toxic ingredients will be refused.

"3rd—Advertisements presenting extravagant or impossible statements will be refused.

"4th—Advertisements of pharmaceutical preparations or appliances exploited in accordance with rule 1st, which are needed, or can be used in alleviating the ills of childhood, will be accepted; so also will advertisements exploding goods for the nursery, and for the child's happiness or amusement."

This question, as to what advertisements should be allowed in a medical journal, is one of the highest importance to the profession. It has seemed of such moment to the Directors of the Cleveland Medical Journal that they have decided to limit, as soon as present contracts expire, the advertisement of medicinal preparations to such as are endorsed by the Council on Pharmacy and Chemistry of the A. M. A.—ED.

News Notes.

Maurice B. Bonta has moved his office to 1003 Rose Building.

The Department of Sociology of the Western Reserve University announces the following special lectures for December in the Public Course in Sociology:

Wednesday, Dec. 1. Richard C. Cabot, M. D., of the Harvard Medical School and the Massachusetts General Hospital. Subject: Thoroughness in Hospital Work, and What it Involves.

Saturday, Dec. 4. Prof. William T. Sedgwick, of the Massachusetts Institute of Technology. Subject: Public Health and Sanitation.

Saturday, Dec. 11. Mr. Robert A. Woods, of the South End House, Boston, Mass. Subject: Depth and Breadth in Settlement Work.

Saturday, Dec. 18. Mr. Edward J. Ward, Supervisor of Social Centers and Playgrounds in the City of Rochester. Subject: Rochester Social Centers and Civic Clubs.

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These lectures will be given in the Auditorium of the Cleveland Medical Library, 2318 Prospect Ave., at 8:00 p. m. All persons interested in civic problems are invited. Admission 25 cents.

The Lakeside Hospital Medical Society held its forty-second meeting Wednesday, October 27. The program was as follows: 1. Presentation of a Case of Henoch's Purpura, J. MacLachlan; 2. Presentation of a Case of Synechia Cordis, C. W. Wyckoff; 3. Presentation of a Case of Impetiginous Stomatitis, H. N. Cole; 4. Surgery in Disease of the Stomach, C. F. Hoover; 5. Presentation of Pathological Specimens, A. W. Ellis.

The forty-third meeting was held Wednesday, November 24. The program was as follows: 1. The Use of Massage in Convalescence, W. N. Gunsolly; 2. Presentation of a Case of Cyclic Vomiting, L. Pomeroy; 3. Presentation of a Case of Cerebellar Tumor, H. N. Cole; 4. Report of Cases of Puerperal Septicemia, H. G. Scranton; 5. Report of a Case of Transfusion for Shock, H. G. Sloan; 6. Presentation of Pathological Material; Acute Suppurative Pancreatitis Due to Obliterating Endarteritis; Tumor of Mediastinum, A. W. Ellis.

The Dalrymple Hospital, formerly located on East 100th St., now occupies the handsome building at 1948 East 101st St., formerly used as a sanatorium by Dr O. A. Palmer, who has now retired from such work. In addition to those cases which require general hospital treatment, patients who need sanatorium treatment will be admitted; the building is well equipped and furnished for this work.

The Faculty of the W. R. U. Medical College has announced the following appointments: Chas. F. Hoover, Prof. of Medicine; J. H. Lowman, and J. P. Sawyer, Professors of Clinical Medicine; John Phillips, Assistant Prof. of Medicine; A. H. Bill, Associate Prof. of Obstetrics; W. B. Chamberlin, Instructor in Diseases of the Nose, Throat and Ear; J. D. Pilcher, Instructor in Pharmacology and Materia Medica. F. S. Clark has resigned his position as Lecturer on Obstetrics.

The Lorain County Medical Society held an open meeting at the First Congregational Church, Elyria, Nov. 9. A. T. Maynard spoke upon Tuberculosis and its Prevention. A. J. McNamara presented stereopticon views on the subject.

The Staff of the Elyria Memorial Hospital held their regular monthly meeting at the hospital Tuesday, Nov. 16.

The Ashtabula County Medical Society held the forty-seventh regular meeting Tuesday, November 2. S. H. Large, Cleveland, read a paper upon Diseases of the Nose and Accessory Sinuses. The lecture was illustrated with a stereopticon.

The Erie County Medical Society met November 24. The following program was presented: 1. Diagnosis and Treatment of Acute Mastoiditis, C. Tuttle; 2. Adenoids—Recognition and Treatment, C. B. Bliss; 3. Sandusky—Past and Future as to Water Supply, Sewers, Fire Protection, Street Improvement and Care of Garbage, Mayor Molter.

The Society recently appointed a committee of three to investigate the possibility of Erie County uniting with neighboring County Medical Societies for the purpose of holding a "Clinic Day" at Providence Hospital, Sandusky. It was also suggested that the Society hold an annual banquet for its members.

W. L. Mecklem of Mansfield while driving was struck by a freight engine and his auto demolished. He himself escaped with a fractured arm and clavicle.

T. H. Nichols of Mansfield has typhoid fever.

The Board of Trustees of the Emergency Hospital, Mansfield, recently met to consider plans for enlarging the Hospital.

C. H. Mill of Toledo has established a branch office at 138 Main St.

A. E. Scheble, non-partisan candidate for the office of mayor of Toledo, was defeated at the recent fall election.

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L. W. Smith, formerly of Wooster, has moved to Toledo, where he has located at the corner of Sixth and Main Streets.

J. C. Price of Toledo has moved his office and residence to the corner of Sixth and Euclid.

Wm. V. Ames, aged 88, who died at his home in Fremont, November 6, was the oldest active Elk in the United States.

Charles E. Davis, who died November 8, was the only 33rd degree Mason in Fostoria.

S. W. Beckwith, former coroner of Lucas County, is critically ill at his home in Toledo, having been stricken with paralysis.

The Toledo Board of Health apparently intends to regulate the milk-supply of that city. On November 11 this board passed a resolution requiring that each dairy wagon be numbered and registered at the office of the board. On November 19 it passed a resolution requiring all wagons selling skimmed milk, also all cans containing skimmed milk, to be so labelled; the lettering on the wagons to be not less than five inches high, those on the cans not less than one inch. Dealers who dispose of unwholesome milk will be immediately prosecuted.

The Commissioners of Defiance, Williams and Paulding Counties will meet to make arrangements for the construction of a $20,000 tuberculosis hospital, which will probably be located in Defiance.

The Thalians, a Toledo organization which conducts the tuberculosis dispensary of that city, raised over $8,000 by their tag day the latter part of November.

Toledo State Hospital for the Insane: The rumor is current that important changes will be made in the management, owing to a change in the political complexion of the board of trustees. It is said that Wm. Watts, chairman of the Lucas County Democratic Committee, will succeed George R. Love as superintendent.

The Toledo Lying-in and Babies' Dispensary was opened October 26. George B. Booth is in charge of the maternity department and Herbert E. Smead of the babies' department. Julius H. Jacobson and Park L. Myers are on the Board of Governors.

The Academy of Medicine of Toledo and Lucas County has been incorporated. This is the first step toward a club house for the Academy.

The following have been the recent meetings of the Academy:

The Surgical Section met Friday, Oct. 22. The program was as follows: 1. The Latent Gall-Stone, N. Smith. 2. The Latent Gastric and Duodenal Ulcer, W. J. Stone; discussion opened by A. Levison. 3. Report of Case of Osteomyelitis, G. M. Todd.

The Eye, Ear, Nose and Throat Section met Friday, Oct. 29. The program was as follows: 1. The Pathogenesis of Glaucoma, E. H. Porter, Tiffin, Ohio. 2. The Diagnosis and Medical Treatment of Acute and Chronic Glaucoma, Chas. Lukens. 3. The Surgical Treatment of Glaucoma, W. H. Snyder. The discussion was opened by Drs Landman, Harvey and Jacobi.

The Pathological Section met Friday, Nov. 12. The program was as follows: 1. Placenta Previa, T. M. Crinnion. 2. Report of a Case of Vesical Calculus, J. F. Fox. 3. Rabies, R. C. Longfellow.

The Medical Section met Friday, Nov. 19. The program was as follows: 1. X-Ray Treatment of Epithelioma, L. M. Dolloway; discussion opend by W. J. Gillette. 2. The Role of Gastro-Intestinal Elimination in Modern Therapeutics, A. J. Ritchie; discussion opened by L. D. Clark.

The Oakland College of Medicine, Oakland, California, will give a course in tropical diseases and medical parisitology, under the direction of Dr Creighton Wellman. The first lecture will be given Monday, Jan. 3, 1909, and the course will last until March. The fee for this course will be $50.00.

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The National Conference on the Prevention of Infant Mortality was held in New Haven, Connecticut, Nov. 11-12, under the auspices of the American Academy of Medicine. A number of papers were read and important questions were discussed. An organization known as the National Society for the Study and Prevention of Infant Mortality was formed and officers were elected, H. J. Gerstenberger of this city being appointed one of the board of directors. The Society believes that the present high rate of infant mortality is largely preventable and that this can be accomplished by encouraging breast-feeding, the compulsory reporting to health boards of all communicable diseases and the scientific instruction of the young and especially mothers in the principles of hygiene and sanitation.

The Dedication of the New Building of the College of Physicians of Philadelphia took place on Nov. 10, 1909. The college is the oldest local organization of physicians in this country and has always been identified with the best interests of the profession. It is not a teaching organization but rather a society, organized for the advancement of scientific medicine. Certificates of associate fellowship were conferred upon seven eminent members of the medical profession of America; one of them so honored was Geo. W. Crile of this city.

To Subscribers. The attention of all subscribers is called to the fact that Mr. F. W. Lawrence is no longer a representative of the Cleveland Medical Journal and has not been our agent since last April. Therefore, we ask subscribers to pay no more subscriptions to him.

No agent is authorized to make collections for the Journal unless showing a card of authorization signed by the Business Manager and dated since Dec. 1, 1909.

Deaths.

James L. Mounts, Morrow, Ohio, died October 21, aged 78.
Lewis Henry Bodman, Toledo, Ohio, died October 18, aged 69.
Edmund B. Mosher, Columbus, Ohio, died October 11, aged 71.
Frederick B. Williamson, Massillon, Ohio, died October 14, aged 44.
George T. Snode, Sarahsville, died October 13, aged 51.
William Ramsey, Delta, Ohio, died October 10, aged 82.
Barbara Albrecht, Cincinnati, Ohio, died March 28, aged 74.
Robert A. Stephenson, Manchester, Ohio, died October 22, aged 71
David S. Sampsel, Ashland, Ohio, died October 29, aged 73.
William K. Coleman, West Union, Ohio, died November 5, aged 56.
Valentine Braun, Toledo, Ohio, died October 19, aged 80.
Albert M. Pherson, Osborn, Ohio, died October 7, aged 62.
William V. Ames, Fremont, Ohio, died November 6, aged 88.
Chas. E. Davis, Fostoria, Ohio, died November 8, aged 80.
Samuel M. Kelso, Xenia, Ohio, died October 17, aged 71.

David Herrick Beckwith, Cleveland, O., died November 16, aged 84 Born in Bronson, Huron Co., Ohio, on Feb. 13, 1825. Dr Beckwith attended the public schools and afterward the Norwalk Seminary. In 1847 and 1848 he studied at the Cleveland Medical College. On March 14, 1849, he graduated at the Eclectic Medical College, Cincinnati, and the following year attended the Cleveland Homeopathic Medical College. During 1872 and 1873 he did postgraduate work abroad. He practiced first in Norwalk, Ohio, later in Marietta and in Zanesville, finally coming to Cleveland in 1881. For 12 years he held a professorship in the Cleveland Homeopathic Medical College and was a member of the hospital staff for 30 years. He held many positions of trust and honor in various medical and other organizations and was an enthusiastic member of the Cleveland Library Association. He was a staunch supporter of the homeopathic school and was held in the highest esteem by the whole medical profession.

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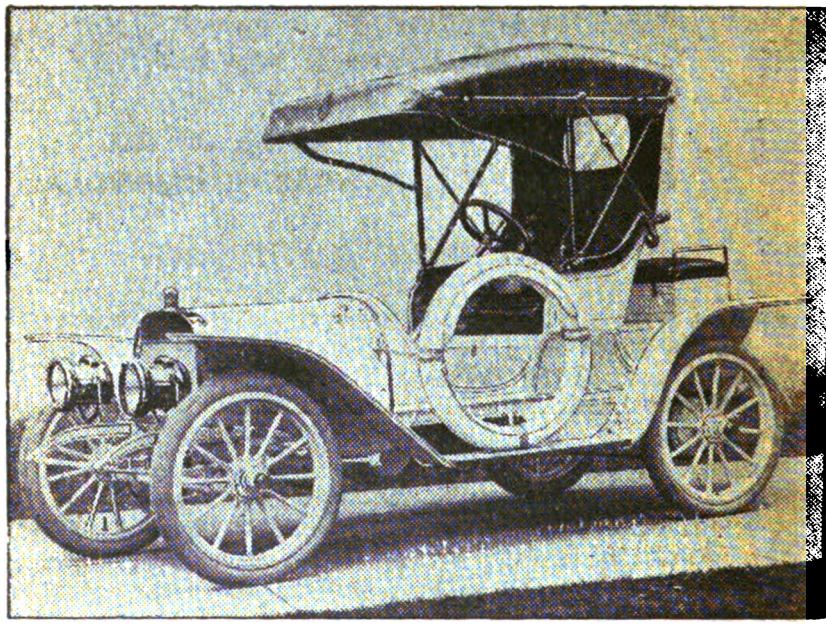
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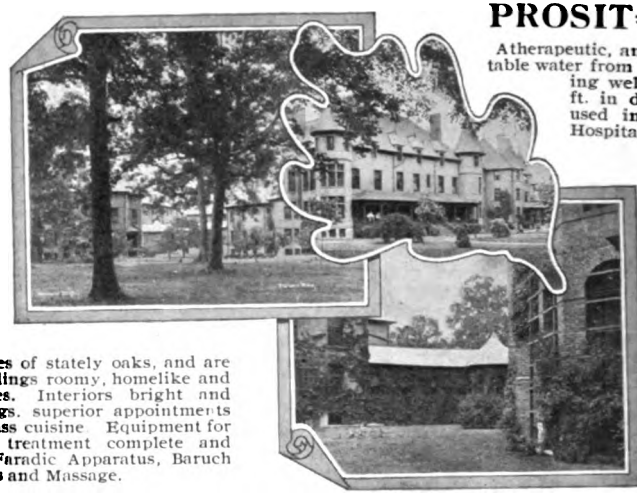
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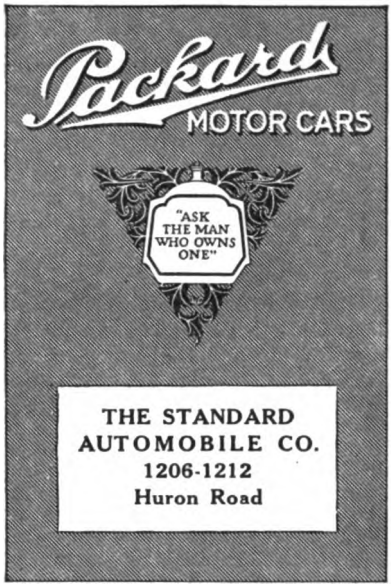
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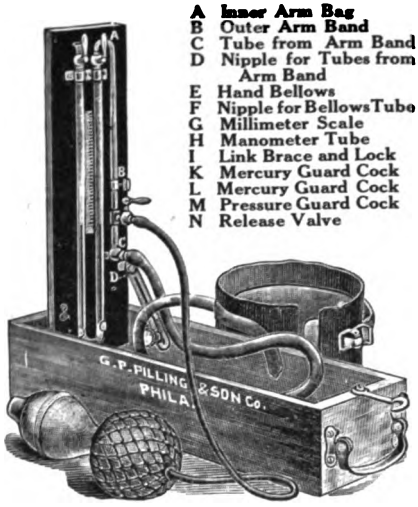
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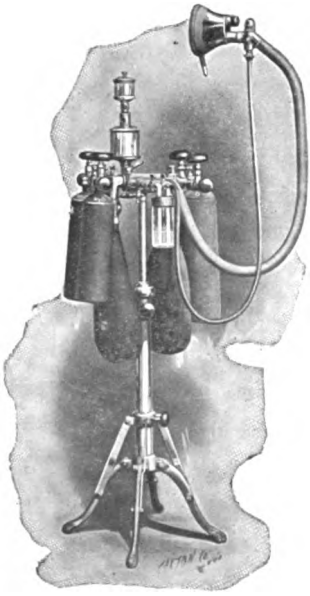
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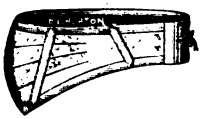
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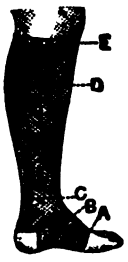
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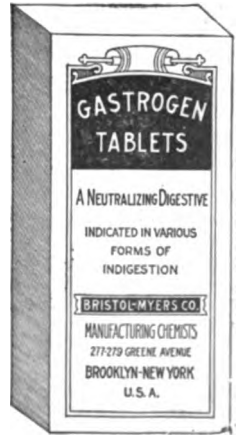
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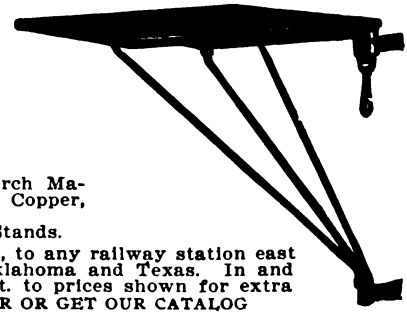
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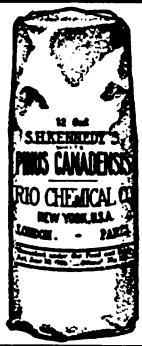
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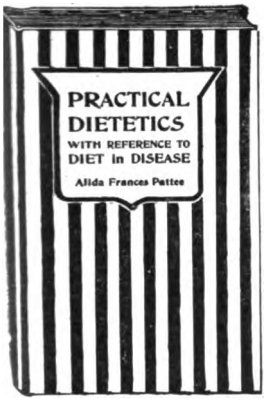
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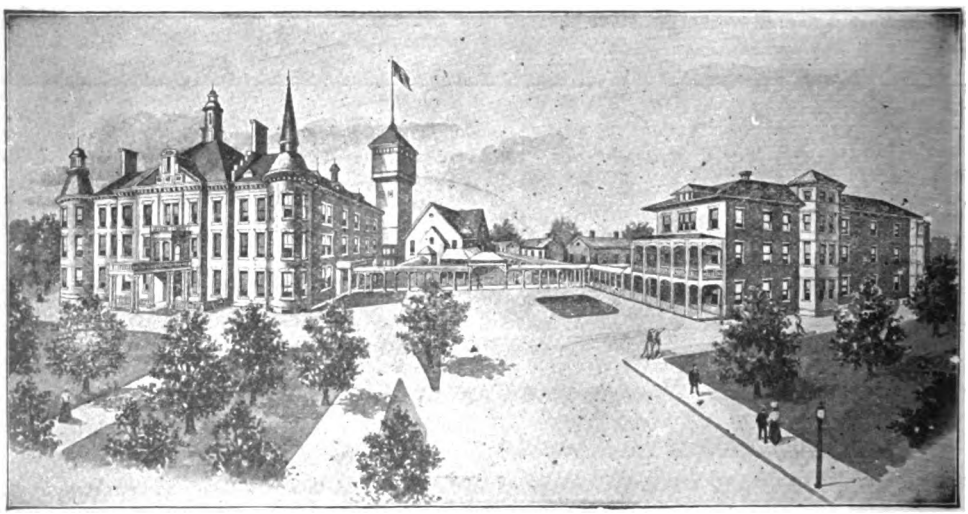
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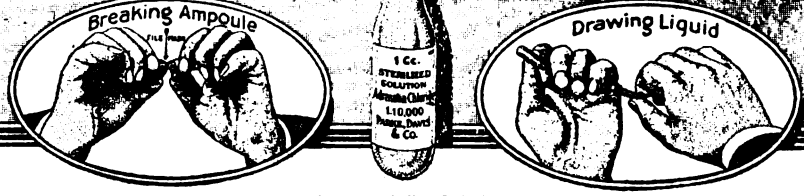
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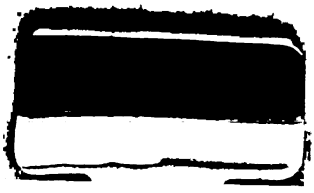
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